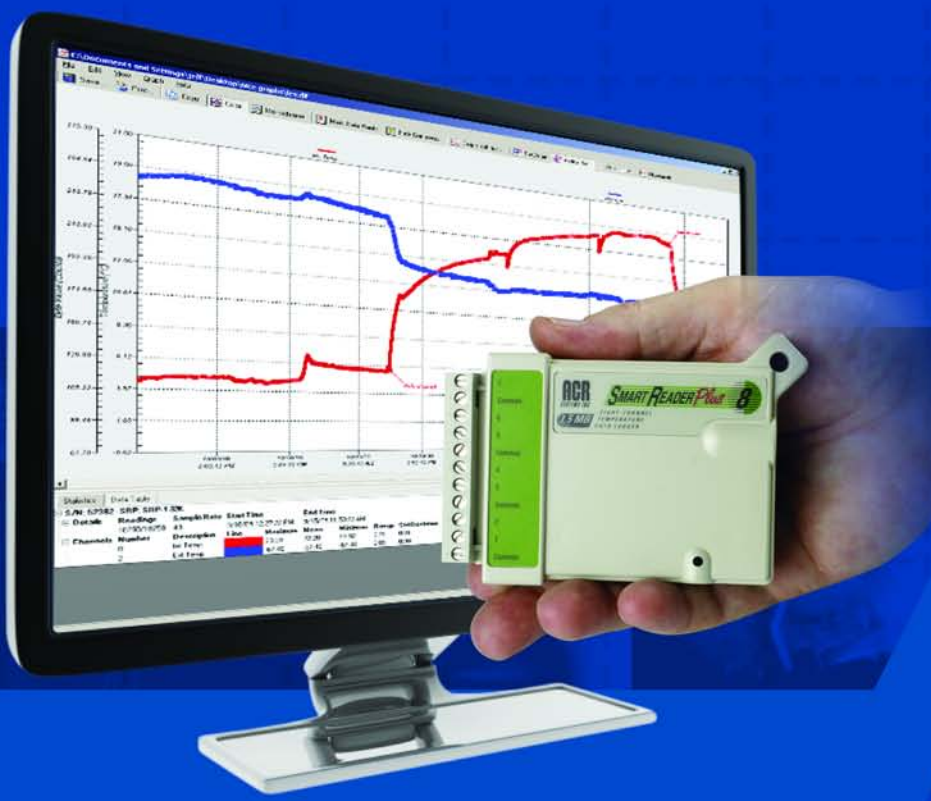
ACR SYSTEMS
PRODUCT CATALOG



PROVEN DATA LOGGING SOLUTIONS

ISO 9001

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Message from the President

ACR Systems Inc. has come a long way since we started designing and building data loggers in 1986. The fundamental values we established at our beginning – customer focus and dedication to quality – made it possible for ACR Systems to become one of the world's leading manufacturers of compact, portable and self-powered data loggers.

Today, our data loggers can be found in a remarkable variety of places, from the space shuttle in outer space to rose farms in South America, museums in London and pharmaceutical laboratories in Chicago. ACR data loggers are renowned in the industry for their functionality, versatility, and robustness. Available in single channel or multi-channels, our data loggers measure and record temperature, relative humidity, electric current, voltage, pressure, process signals, pulse frequency, power quality, and much more.

By maintaining our position at the cutting edge of today's technology and applications, ACR Systems continues to provide the solutions to all your data logging needs. The fundamental values we established at our beginning remain at the heart of our company. We take pride in the dedicated group of engineering, production, administration, sales and marketing professionals on our team. All are committed to providing the highest level of expertise and service to our customers, be it individuals, corporations, or institutions. They are joined by a worldwide network of partners – the distributors and dealers who sell and support our products and create satisfied and successful customers in a wide variety of industries around the world.

For additional information on ACR Systems, I invite you to visit our website at www.acrsystems.com.

On behalf of all of us at ACR Systems, I thank you for choosing our company. I appreciate your business and look forward to the opportunity of providing you with quality data logging products.

Albert C. Rock
President, ACR Systems Inc.

Proven Performers in a Wide Range of Applications

Product Overview

ACR Systems is the original manufacturer and pioneer of portable data loggers with an extensive product line to meet a variety of customers' needs. From low-cost, single channel data loggers to high-end multi-channel and multi-functioning data loggers, ACR has the right product for you.

SmartReader Plus

This line of 12-bit, multi-channel data loggers can measure temperature, relative humidity, current, voltage, pressure, pulse, and process signals. They have fast sampling rates, alarm dial-out capabilities and a 10-year battery life. They are network capable, modem accessible and wireless ready.

SmartReader

This line of 8-bit, multi-channel data loggers can measure temperature, relative humidity, current, voltage, pressure, pulse, and process signals. They are network capable, modem accessible, and have a 10-year battery life.

TRH

Low-cost and easy to use, this dual channel temperature and relative humidity data logger is equipped with a serial port plug for quick and simple downloads to your PC or laptop.

JR

Low-cost and easy to use, this single channel temperature data logger plugs directly into the serial port of your PC or laptop for quick and simple downloads. An Intrinsically Safe version is also available (JR-1001).

Nautilus

These single channel, waterproof temperature data loggers are encased in either aluminum or stainless steel, which enables them to withstand harsh environments. A high temperature version is also available (Nautilus135).

SmartButton

At the size of a dime, this single channel temperature data logger is ACR's most compact and affordable product. It comes with user-configurable software and several mounting devices to suit your needs.

OWL

Extremely versatile, these single channel temperature, current, voltage and process signal data loggers have an LED port for visual alarming and optical communication.

PowerWatch

This compact voltage disturbance recorder plugs directly into any power receptacle and records essential power quality information such as surges, sags, impulses, outages, dropouts, and frequency variations.

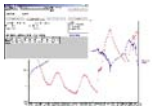
IAQ System

The IAQ Logger monitors temperature, relative humidity and carbon dioxide.

Communication

Communication with ACR products to a computer comes in a variety of forms - either direct or indirect via cables, modem (cellular analog or digital), radio frequency, and/or Ethernet. For real-time readings from the SmartReader Plus line of data loggers, use the SRP Display Module.

Software



ACR software is powerful, versatile and easy to use with features such as one-touch table views, presentation-quality graphs, and export capabilities.

Market Overview

ACR data loggers are recognized globally as the premium instrument of its kind and proven performers in a wide range of applications. The following represents the core markets in which ACR serves and the typical applications requiring the use of our data loggers.

HVAC

Temperature/Relative Humidity
Building Commissioning • Building Automation System Performance • Indoor Air Quality Monitoring and Recording HVAC Systems Verification • Temperature Analysis • Moisture Analysis

Pressure
Building Pressurization • Mechanical Components Troubleshooting • Air-Flow Measurement • Odor Migration Analysis

Current/Voltage
Testing and Balancing • Troubleshooting HVAC Systems • Electrical Load Profiling Energy Management Systems Audit Energy Consumption Monitoring and Recording

Electrical/Energy

Power Quality
Electronic and Medical Equipment Auditing Computer Server Room Monitoring • UPS and TVSS Equipment Monitoring Predictive Maintenance

Current/Voltage
Single-Phase Systems' Balancing • Energy Consumption Monitoring • Electrical Load Profiling Energy Auditing

Food & Beverage

Temperature
Transportation and/or Storage Monitoring Food Cool-Down or Heating Profiling Liability Management • Refrigeration Systems Verification • Perishable Goods Monitoring • Defrost Cycle Performance Quality Assurance

Current/Voltage
Equipment and Machinery Performance Audit

Process Signals
Processing Plant Audit • Systems Verification • Quality Assurance

Pulse
Equipment and Machinery Sequence Monitoring

Industrial

Temperature
Production Characteristics Monitoring (i.e. concrete curing, paint drying, etc.) Product Storage Conditions • Ambient Conditions

Current/Voltage
Equipment and Machinery Performance Audit

Pressure
Pneumatic Controls and/or Equipment Monitoring • Manufacturing Processes Audit

Process Signals
Manufacturing or Processing Plant Audit Plant Systems Verification • Quality Assurance • Shock, Flow, and/or Vibration Monitoring • System Profiling

Pulse
System Profiling • Pulse Counting (i.e. water flow, wind/air speed, etc.)

Pharmaceutical/Laboratory

Temperature/Relative Humidity
Data Validation • Critical Environment Monitoring • Clean Room and Metrology Management • Environmental Testing Indoor Air Quality Monitoring and Recording

Government/Military

Temperature and/or Relative Humidity
Munitions Storage and Transportation Monitoring • Environmental and Comfort Conditions Monitoring • Survival Suit Testing

Pressure
Cabin Pressure Monitoring

Product Selection Guide

	CHANNELS	MEASUREMENT RANGE	RESOLUTION	MEMORY (MAX.)
TEMPERATURE				
SmartButton	1	-40 to 85ºC (-40 to 185ºF)	8 Bit	2 KB
Thermistor				
JR-1000/1001	1	-40 to 85ºC (-40 to 185ºF)	8 Bit	32 KB
OWL 100	1	-40 to 70ºC (-40 to 158ºF)	8 Bit	32 KB
OWL 200	1	-60 to 255ºC (-76 to 491ºF)	8 Bit	32 KB
SmartReader 1	2	-60 to 255ºC (-76 to 491ºF)	8 Bit	32 KB
SmartReader Plus 1	2	-60 to 255ºC (-76 to 491ºF)	12 Bit	1.5 MB
SmartReader 8	8	-60 to 255ºC (-76 to 491ºF)	8 Bit	32 KB
SmartReader Plus 8	8	-60 to 255ºC (-76 to 491ºF)	12 Bit	1.5 MB
Thermocouple				
SmartReader 5	3	J, K, S, T thermocouple ranges	8 Bit	32 KB
SmartReader Plus 5	3	E, J, K, S, T thermocouple ranges	12 Bit	128 KB
SmartReader Plus 6	8	E, J, K, S, T thermocouple ranges	12 Bit	1.5 MB
RTD				
SmartReader Plus 10	4	-230 to 300ºC (-385 to 572ºF)	12 Bit	128 KB
Water Resistant				
OWL 100 - Poly	1	-40 to 70ºC (-40 to 158ºF) (IP67 rating)	8 Bit	32 KB
Nautilus85	1	-40 to 85ºC (-40 to 185ºF)	8 Bit	32 KB
Nautilus135	1	10 to 135ºC (50 to 275ºF)	8 Bit	32 KB
RELATIVE HUMIDITY				
TRH-1000	2	-40 to 70ºC (-40 to 158ºF) and 0 - 100% RH	8 Bit	64KB
SmartReader 2	4	-40 to 70ºC (-40 to 158ºF) and 0 - 95% RH	8 Bit	32 KB
SmartReader Plus 2	4	-40 to 70ºC (-40 to 158ºF) and 0 - 95% RH	12 Bit	128 KB
IAQ Logger	5	-40 to 70ºC (-40 to 158ºF) and 0 - 95% RH	8 Bit	32 KB
Conservation Logger	4	-40 to 70°C (-40 to 158°F) and 0 - 95% RH	12 Bit	128 KB
AC CURRENT/VOLTAGE				
OWL 300	1	5, 25, 100, 250 or 10, 50, 250, 500 Amps*	8 Bit	32 KB
SmartReader 3	4	50 or 60 Hz, 5 - 500A*	8 Bit	32 KB
SmartReader Plus 3	8	5 - 500A*, 0 - 5V or 120VAC, 480VAC	12 Bit	1.5 MB
		* *Up to 3,000 Amps with Current Transformer*		
PRESSURE				
SmartReader 4	5	0 - 5, 30, 100 & 150 PSI	8 Bit	32 KB
SmartReader Plus 4	4	0 - 5, 30, 100 & 150 PSI	12 Bit	128 KB
SmartReader Plus 4 LPD	2	+/- 0.5", 1", 2", 5", 10" WC	12 Bit	32 KB
PROCESS SIGNALS				
OWL 400	1	0 - 38.4V	8 Bit	32 KB
OWL 500	1	4 - 20mA	8 Bit	32 KB
SmartReader 7	8	0 - 10V, 4 - 20mA, 0 - 200mV	8 Bit	32 KB
SmartReader Plus 7	8	0 - 2.5V, 0 - 5V, 0 - 10V, 4 - 20mA, 0 - 200mV	12 Bit	1.5 MB
Conservation Logger	4	0-5V (2x)	12 Bit	128 KB
PULSE				
SmartReader 9	3	32, 64, 128 pulses/second	8 Bit	32 KB
SmartReader Plus 9	2	4095 pulses/sample period	12 Bit	128 KB
POWER QUALITY				
PowerWatch	1	120V or 240V, single phase	n/a	32 KB
CO_2 AND OTHER GASES				
IAQ Logger	5	0 - 4,000 ppm	8 Bit	32 KB

# OF READINGS (MAX.)	SAMPLING RATE	SECONDARY CHANNEL(S)	BATTERY LIFE	PAGE #
2,048	1 to 255 minutes	n/a	1 yr	28
244,800	8 seconds to 34 minutes	n/a	5 yr	22
32,767	0.2 seconds to 12 hours	n/a	10 yr	25
32,767	0.2 seconds to 12 hours	n/a	10 yr	25
32,767	8 seconds to 120 hours	External temperature	10 yr	16
1,048,000	0.04 seconds to 8 hours	External temperature	10 yr	7
32,767	8 seconds to 120 hours	External temperature	10 yr	20
1,048,000	0.04 seconds to 8 hours	External temperature	10 yr	13
32,767	8 seconds to 120 hours	Ambient temperature	10 yr	18
87,000	0.04 seconds to 8 hours	Ambient temperature	10 yr	11
1,048,000	0.04 seconds to 8 hours	Ambient temperature	10 yr	11
87,000	0.04 seconds to 8 hours	Ambient temperature	10 yr	14
32,767	0.2 seconds to 12 hours	n/a	10 yr	25
244,800	8 seconds to 34 minutes	n/a	10 yr	23
244,800	8 seconds to 34 minutes	n/a	3 yr	23
65,280	8 seconds to 34 minutes	n/a	5 yr	21
32,767	8 seconds to 120 hours	Temperature	10 yr	16
87,000	0.04 seconds to 8 hours	Temperature	10 yr	7
32,767	8 seconds to 120 hours	Temperature and CO2	10 yr	31
87,000	0.04 seconds to 8 hours	Temp and 0-5V process signals	5 yr	30
32,767	0.2 seconds to 12 hours	n/a	10 yr	26
32,767	8 seconds to 120 hours	Ambient temperature	10 yr	17
1,048,000	0.04 seconds to 8 hours	Ambient temperature	10 yr	8
32,767	8 seconds to 120 hours	Temperature and RH	10 yr	17
87,000	0.04 seconds to 8 hours	Temperature and RH	10 yr	9
21,500	0.04 seconds to 8 hours	Ambient temperature	10 yr	10
32,767	0.2 seconds to 12 hours	n/a	10 yr	26
32,767	0.2 seconds to 12 hours	n/a	10 yr	27
32,767	8 seconds to 120 hours	Various	10 yr	19
1,048,000	0.04 seconds to 8 hours	Various	10 yr	12
87,000	0.04 seconds to 8 hours	Temperature and RH	5 yr	30
32,767	8 seconds to 120 hours	Ambient temperature	10 yr	20
87,000	0.04 seconds to 8 hours	n/a	10 yr	13
4,000	continuous	n/a	10 yr	32
32,767	8 seconds to 120 hours	Temperature and RH	10 yr	31

SmartReader Plus - Common Specifications

Multi-Channel, Configurable, 12-Bit Data Loggers

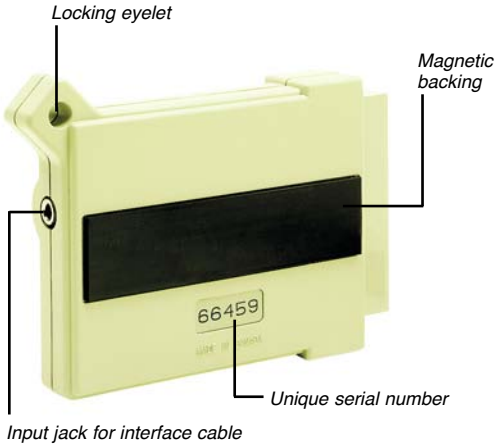
FEATURES

- Multiple channels
- Monitor a variety of parameters:
  - Temperature
  - Relative Humidity
  - Current
  - Voltage
  - Pressure
  - Process Signals
  - Pulse
- 12-bit resolution
- 10-year battery life
- 3-year warranty
- Up to 1.5 MB memory
- Fast sample rates (up to 25 samples per second)
- Remote access via modem or Ethernet
- Network capable (connect up to 10 data loggers)
- Alarm dial-out
- User configurable

Front

Removable screw-type terminal block for easy connections
Rugged Noryl® enclosure
Internal thermistor temperature sensor

Back



PRODUCT SPECIFICATIONS

SmartReader Plus data loggers share many common features. For further specifications on individual models, refer to pages 7-14.

Size:
107 mm x 74 mm x 22 mm (4.2" x 2.9" x 0.9")
Weight:
110 g (3.75 oz)
Case Material:
Noryl® plastic
External Connector:
Removable screw-type terminal strip with Common (-) connection
Mounting:
Magnetic backing or locking eyelet
Operating Limits:
-40 to 70ºC (-40 to 158ºF) and 0 to 95% relative humidity (non-condensing)
Clock Accuracy:
+/- 2 seconds per day
Battery:
3.6 volt Lithium, 1 Amp-Hour
Battery Life:
10 years under normal use (factory replaceable)
Power Consumption:
5 to 10 microamps (continuous)
Memory Sizes*:
32 KB (21,500 readings)
128 KB (87,000 readings)
1.5 MB (1,048,000 readings)
**See specific models for availability*
Sampling Methods:
1. Continuous (First-in, First-out – not available with sample rates faster than 8 seconds)
2. Stop when full (Fill-then-stop)

Sampling Rates:
User selectable rates from 25 per second (0.04 seconds) to once every 8 hrs*
**BP-101 Battery Pack or PS-201 Power Supply required for sample rates faster than 8 seconds (see Accessories section for details)*
Resolution:
12-bit (1 part in 4,096)

PC Requirements:
PC running Windows 2000 SP4, Windows XP SP1 or Windows Vista 32 bit. PC must have one free serial or USB port depending on connection.
Software Requirements:
TrendReader® 2 (see page 32 for details)
Certifications and Standards:
- Certified to CE standard EN50082-1: 1997 (European Generic Immunity) covering ESD, RFI, EFT/B, Surge, Conducted Immunity, Power Frequency Magnetic Field Immunity, and Voltage Dips and Interruptions
- Meets CE standards EN55011 Class B: 1997 (European Radiated Emissions) and CISPR Class B: 1991 (International Radiated Emissions)

Resistance to X-Rays:
- Tested for protection against a 160kV dose @ 5mA for 30 seconds (150mA-sec) @ 38 inches F.F.D. (about 100 times that of an airport x-ray machine)
- Tested for protection against Gamma Ray (equivalent to 0.137-1.38 mega volts) IR 192 - 28 curies @ 30 second exposure source to object distance 5"

INTERNAL TEMPERATURE SENSOR
(common on all models, except SmartReader Plus 9)

Type:
Negative Temperature Coefficient Thermistor
10,000 ohms @ 25ºC (77ºF)
Range:
-40 to 70ºC (-40 to 158ºF)
Accuracy:
+/- 0.2ºC over the range of 0 to 70ºC (+/- 0.3ºF over the range of 32 to 158ºF)
Resolution:
0.03ºC at 25°C (0.05ºF at 77°F); better than 0.07ºC (0.12°F) between -25 and 70°C (-13 and 158°F); better than 0.13ºC (0.23°F) between -40 and -25°C (-40 and -13°F)

SmartReader Plus 1

Two-Channel Temperature (Thermistor) Data Logger

The SmartReader Plus 1 data logger is specifically designed for easy monitoring and recording of temperature. With one internal ambient temperature channel and one input for optional remote temperature or contact closure sensing, this data logger is ideal for quick and accurate temperature recordings in a variety of applications.

PRODUCT SPECIFICATIONS

No. of Channels:
Two - One for ambient temperature
- One for temperature (with thermistor probe), switch status or resistance

Memory Sizes:
32 KB, 128 KB and 1.5 MB

Common Specifications:
See page 6

Software Specifications:
See page 32

Remote & Network Communications:
See page 35

Accessories:
ACR ET Series Temperature Probes or any NTC thermistor probe

Order Information

MODEL	MEMORY	CATALOG #
SRP-001	32 KB	01-0008
SRP-001-128K	128 KB	01-0112
SRP-001-1.5M	1.5 MB	01-0141

FEATURES

- Two channels
- Monitor and record temperature
- Option to monitor remote temperature, resistance or switch status
- Use with a variety of different temperature probes:
  - General purpose
  - High temperature
  - Low temperature
  - Waterproof temperature
  - Oven temperature
  - Skin surface temperature
  - Pipe surface temperature

SmartReader Plus 2

Four-Channel Temperature and Relative Humidity Data Logger

The SmartReader Plus 2 is a self-contained data logger that can monitor and record temperature and relative humidity - right out of the box. The on-board RH sensor is temperature compensated, permitting reliable, worry-free RH readings. For remote sensing of temperature and RH, simply attach ACR's temperature/RH probe, or for remote temperature sensing, attach up to two thermistor probes.

PRODUCT SPECIFICATIONS

No. of Channels:
Four - One for ambient temperature
- One for relative humidity (internal sensor)
- One for relative humidity (external sensor)
- One for temperature, resistance or switch status

Relative Humidity Sensor:
Capacitive thin polymer film

Range:
0 to 95% RH (non-condensing)

Accuracy:
+/- 3% RH from 10 to 90% RH (-20 to 40ºC [-4 to 104ºF])

Resolution:
Better than 0.04% between 25 and 60% RH at 25ºC (77ºF)

Response Time:
Adequate ventilation increases the response time which is approximately 5 minutes in still air.

Environmental Conditions:
Like all relative humidity sensors, when exposed to contaminants and/or extreme environmental conditions, accuracy degradation could result. For maximum long-term stability, sensor should not be exposed or subjected to organic solvents, corrosive agents (strong acids, SO_2, H_2SO_4, Cl_2, HCl, H_2S, etc.) and strong bases (compounds with PH greater than 7). Dust settling on the sensor surface will not affect sensor performance except possibly to decrease the speed of response.

Memory Size:
128 KB

Common Specifications:
See page 6

Software Specifications:
See page 32

Remote & Network Communications:
See page 35

Accessories:
ACR EH-020A Temperature & RH Probe
ACR ET Series Temperature Probes or any NTC thermistor probe

Order Information

MODEL	MEMORY	CATALOG #
SRP-002-128	128 KB	01-0113

FEATURES

- Four channels
- Monitor temperature and RH
- Option to monitor remote temperature, RH and/or resistance
- Use with a variety of different temperature probes (see list above)
- N.I.S.T. traceable measurements
- Includes calibration certificate

SmartReader Plus 3

Eight-Channel AC Current and Voltage Data Logger

The SmartReader Plus 3 easily and accurately records AC current and voltage. Simply connect ACR's current probes (which are clamped around the power leads) and ACR's voltage transducer to the data logger and begin recording. From the data collected, you can even determine energy consumption (kWh) using ACR's powerful, versatile and easy to use software, TrendReader® 2.

FEATURES

- Eight channels
- Monitor current and voltage (single or 3-phase)
- Determine energy consumption

PRODUCT SPECIFICATIONS

No. of Channels:
Eight - One for ambient temperature
- Four for AC current (with ACR current probes)
- Three for AC voltage (with ACR voltage transducers, single phase or 3-phase)

Current Ranges*:
5, 25, 100, and 250 Amps - With A60FL (60 Hz) and A65FL (50 Hz) current probes
10, 50, 250, and 500 Amps - With A70FL (60 Hz) and A75FL (50 Hz) current probes
** Up to 3000 Amps with the ACR CT-50-2 current transformer*

Nominal Voltage Ranges:
120 V (1 phase, 60 HZ)
480 V (3 phase, 60 HZ)

Accuracy:
Voltage Channels: +/- 0.5% F.S.
Current Channels: +/- 3.5% F.S. above the lowest 10% of range

Memory Size:
32 KB, 128 KB and 1.5 MB

Common Specifications:
See page 6

Software Specifications:
See page 32

Remote & Network Communications:
See page 35

Accessories:
ACR AC Current Probes
ACR AC Voltage Transducers
ACR CT-50-2 Current Transformer

Order Information

MODEL	MEMORY	CATALOG #
SRP-003	32 KB	01-0010
SRP-003-128K	128 KB	01-0114
SRP-003-1.5M	1.5 MB	01-0143

SmartReader Plus 4

Four-Channel Pressure, Temperature and Relative Humidity Data Logger

The SmartReader Plus 4 data logger provides easy monitoring and troubleshooting of pneumatic control systems. The unit is completely self-contained with a 1/4" quick-release pressure fitting to allow a fast and trouble-free connection. As an added bonus, the SmartReader Plus 4 also monitors ambient temperature and either external temperature (with thermistor probes) or temperature and relative humidity together (with an RH/temperature probe). Probes and sensors are sold separately through ACR.

PRODUCT SPECIFICATIONS

No. of Channels:
Four - One for ambient temperature
- One for pressure
- One for relative humidity
- One for temperature, resistance or switch status

Calibrated Accuracy:
+/- 0.5% of full scale @ 25ºC (77ºF)

Memory Sizes:
32 KB and 128 KB

Common Specifications:
See page 6

Software Specifications:
See page 32

Remote & Network Communications:
See page 35

Accessories:
ACR EH-020A RH/Temperature Probe
ACR ET Series Temperature Probes or any NTC thermistor probe

PRESSURE SPECIFICATIONS

Range	Resolution	Pressure Accuracy	Thermal Accuracy
+/- 10" H_20	0.006"	+/- 2% FS @ 25ºC (77ºF)	+/- 3% FS 0 to 70ºC (32 to 158ºF)
0 to 5 psi (30 kPa)	0.003 psi (0.02 kPa)	+/- 1% FS @ 25ºC (77ºF)	+/- 1.5% FS 0 to 70ºC (32 to 158ºF)
0 to 30 psi (200 kPa)	0.015 psi (0.10 kPa)	+/- 0.5% FS @ 25ºC (77ºF)	+/- 0.5% FS 0 to 70ºC (32 to 158ºF)
0 to 100 psi (700 kPa)	0.05 psi (0.34 kPa)	+/- 0.5% FS @ 25ºC (77ºF)	+/- 0.5% FS 0 to 70ºC (32 to 158ºF)

Order Information

MODEL	PRESSURE RANGE	MEMORY	CATALOG #
SRP-004-010	0-10" H_2O	32 KB	01-0090
SRP-004-010-128K	0-10" H_2O	128 KB	01-0120
SRP-004-5G	0-5 PSI-G	32 KB	01-0091
SRP-004-5G-128K	0-5 PSI-G	128 KB	01-0115
SRP-004-30G	0-30 PSI-G	32 KB	01-0093
SRP-004-30G-128K	0-30 PSI-G	128 KB	01-0117
SRP-004-30A	0-30 PSI-A	32 KB	01-0092
SRP-004-30A-128K	0-30 PSI-A	128 KB	01-0116
SRP-004-100G	0-100 PSI-G	32 KB	01-0095
SRP-004-100G-128K	0-100 PSI-G	128 KB	01-0119
SRP-004-100A	0-100 PSI-A	32 KB	01-0094
SRP-004-100A-128K	0-100 PSI-A	128 KB	01-0118
SRP-004-150G	0-150 PSI-G	32 KB	01-0097
SRP-004-150G-128K	0-150 PSI-G	128 KB	01-0139

FEATURES

- Four channels
- Monitor pressure, temperature and RH
- Choose from a variety of different pressure ranges
- Use with a variety of different temperature probes

SmartReader Plus 4 LPD

Two-Channel Low Pressure Differential Data Logger

The SmartReader Plus 4 LPD data logger is designed to be used in applications where very precise, low differential pressure measurements are required.

FEATURES

- Two channels
- Monitor very low pressure - several ranges to choose from
- Very precise and accurate measurements
- Extra fine pressure resolution
- Temperature compensated

PRODUCT SPECIFICATIONS

No. of Channels:
Two - One for ambient temperature
- One for low pressure

Sensor Type:
Silicone piezoresistive strain gauge

Pressure Ranges (Water Column):
+/- 0.5", +/- 1.0", +/- 2.0", +/- 5.0", +/- 10"

Maximum Pressure:
Four times full scale

Media:
Non-corrosive gases and dry air

Temperature Range:
Operating: -40 to 70ºC (-40 to 158ºF)
Compensated: 0 to 70ºC (32 to 158ºF)

Accuracy:
Calibrated: +/- 0.05" for 0.5", 1.0" and 2.0" ranges
+/- 1.0" for 5.0" and 10.0" ranges
Thermal: +/- 0.5% FS (over compensated range)

Resolution:
< 0.01" WC

Non-linearity:
+/- 0.05% FS (best fit straight line)

Hysteresis & Repeatability:
+/- 0.05% FS (typical)

Long Term Stability:
+/- 0.5% FS

Memory Size:
32 KB

Common Specifications:
See page 6

Software Specifications:
See page 32

Remote & Network Communications:
See page 35

Order Information

MODEL	PRESSURE RANGE	ACCURACY	MEMORY	CATALOG #
SRP-004-LPD-0.5	+/- 0.5" WC	+/- 0.05"	32 KB	01-0310
SRP-004-LPD-1	+/- 1.0" WC	+/- 0.05"	32 KB	01-0311
SRP-004-LPD-2	+/- 2.0" WC	+/- 0.05"	32 KB	01-0312
SRP-004-LPD-5	+/- 5.0" WC	+/- 1.0"	32 KB	01-0313
SRP-004-LPD-10	+/- 10.0" WC	+/- 1.0"	32 KB	01-0314

SmartReader Plus 5

Three-Channel Temperature (Thermocouple) Data Logger

The SmartReader Plus 5 data logger is ideal for those applications that require monitoring high temperatures or monitoring temperature over a wide range. The logger has one internal channel for measuring ambient temperature and two external channels for use with ACR thermocouple wire or any J, K, S, T or E type thermocouple wire. At 12-bit resolution, the SmartReader Plus 5 offers greater accuracy and more precise measurements than the SmartReader 5.

PRODUCT SPECIFICATIONS

No. of Channels:
Three - One for ambient temperature (also for cold-junction compensation)
- Two for temperature (with thermocouples)

Accuracy:
+/- 0.5% of range + resolution*

Memory Size:
32 KB and 128 KB

Common Specifications:
See page 6

Software Specifications:
See page 32

Remote & Network Communications:
See page 35

Accessories:
ACR Thermocouple Wire or any J, K, S, T, and E type thermocouple wire

Order Information

MODEL	MEMORY	CATALOG #
SRP-005	32 KB	01-0012
SRP-005-128K	128 KB	01-0121

FEATURES

- Three channels
- Monitor extremely high temperatures
- Monitor temperature over a wide range
- Use with a variety of different thermocouple probes
- Greater resolution and accuracy than SR5

SmartReader Plus 6

Eight-Channel Temperature (Thermocouple) Data Logger

Monitor temperature over a wide range with the SmartReader Plus 6 data logger. Easily and accurately record temperature from any J, K, S, T or E type thermocouple probe. At 12-bit resolution, the SmartReader Plus 6 offers greater accuracy and more precise measurements than the SmartReader 6. With seven inputs for thermocouple probes and an on-board cold-junction thermistor, this logger is one of the most versatile thermocouple data loggers available.

PRODUCT SPECIFICATIONS

No. of Channels:
Eight - One for ambient temperature (also for cold-junction compensation)
- Seven for temperature (with thermocouples)

Accuracy:
+/- 0.5% of range + resolution*

Memory Size:
32 KB, 128 KB and 1.5 MB

Common Specifications:
See page 6

Software Specifications:
See page 32

Remote & Network Communications:
See page 35

Accessories:
ACR Thermocouple Wire or any J, K, S, T, and E type thermocouple wire

Order Information

MODEL	MEMORY	CATALOG #
SRP-006	32 KB	01-0013
SRP-006-128K	128 KB	01-0122
SRP-006-1.5M	1.5 MB	01-0151

FEATURES

- Eight channels
- Record temperature in eight different locations
- Monitor extremely high temperatures
- Monitor temperature over a wide range
- Use with a variety of different thermocouple probes
- Greater accuracy and resolution than SR6

THERMOCOUPLE TEMPERATURE *(For both SmartReader Plus 5 and 6)*

Type	Range	*Resolution
J	-50 to 600ºC (-55 to 1100ºF)	0.30ºC (0.55ºF)
K	-100 to 1150ºC (-145 to 2100ºF)	0.50ºC (0.90ºF)
S	0 to 1450ºC (32 to 2642ºF)	1.0ºC (1.8ºF)
T	-200 to 400ºC (-325 to 750ºF)	0.40ºC (0.75ºF)
E	-50 to 680ºC (-58 to 1250ºF)	0.24ºC (0.44ºF)

SmartReader Plus 7

Eight-Channel Process Signal Data Logger

The SmartReader Plus 7 records a variety of different process signals including the popular 4-20mA and 0-5V. With seven input channels it is ideal for monitoring (through commercially available transducers) a wide variety of measurement parameters such as flow, level, pressure, and much more. All process signals can be displayed in their own engineering units using the simple equation editor in ACR's TrendReader® 2 software.

FEATURES

- Eight channels
- Connect virtually any device that has an analog output
- Record a variety of parameters (i.e. flow, level, pressure, etc.)
- Many different models to choose from

PRODUCT SPECIFICATIONS

No. of Channels:
Eight - One for ambient temperature
- Seven for analog inputs

Standard Model:

Input type:	Input impedance:
0-2.5 V (1 channel)	Greater than 1M Ohm
0-5 V (2 channels)	Greater than 1M Ohm
0-10 V (1 channel)	Greater than 1M Ohm
0-200 mV (1 channel)	Greater than 1M Ohm
0-25 mA (2 channels)	20 Ohm

Other Models:
All inputs: 0-2.5 V, 0-5 V, 0-10 V, or 0-25 mA

Accuracy:
+/- 0.5% of full scale

Overload Protection:
Voltage channels: +/- 40 Volts
Current channels: +/- 70 mA (reverse polarity protected)

Transducer Restrictions:
The use of a single power supply is recommended to avoid ground loops or use loop isolators.

Memory Size:
32 KB, 128 KB and 1.5 MB

Common Specifications:
See page 6

Software Specifications:
See page 32

Remote & Network Communications:
See page 35

Order Information

MODEL	INPUT RANGE(S)	MEMORY	CATALOG #
SRP-007	Standard Model	32 KB	01-0014
SRP-007-128K	Standard Model	128 KB	01-0123
SRP-007-1.5MB	Standard Model	1.5 MB	01-0152
SRP-007-0-2.5V	0-2.5 Volt	32 KB	01-0018
SRP-007-0-2.5V-128K	0-2.5 Volt	128 KB	01-0127
SRP-007-0-5V	0-5 Volt	32 KB	01-0107
SRP-007-0-5V -128K	0-5 Volt	128 KB	01-0124
SRP-007-0-5V-1.5M	0-5 Volt	1.5 MB	01-0154
SRP-007-0-10V	0-10 Volt	32 KB	01-0020
SRP-007-0-10V-128K	0-10 Volt	128 KB	01-0125
SRP-007-0-10V-1.5M	0-10 Volt	1.5 MB	01-0155
SRP-007-25mA	0-25 mA	32 KB	01-0017
SRP-007-25mA-128K	0-25 mA	128 KB	01-0126
SRP-007-25mA-1.5M	0-25 mA	1.5 MB	01-0156

SmartReader Plus 8

Eight-Channel Temperature (Thermistor) Data Logger

The SmartReader Plus 8 data logger can measure temperature in eight different locations simultaneously using ACR's ET series thermistor probes. Monitor and record high temperature, low temperature, pipe surface, skin surface, or a variety of other temperatures.

PRODUCT SPECIFICATIONS

No. of Channels:
Eight - One for ambient temperature
- Seven for temperature (with thermistors), resistance, or switch status

Memory Sizes:
32 KB, 128 KB and 1.5 MB

Common Specifications:
See page 6

Software Specifications:
See page 32

Remote & Network Communications:
See page 35

Accessories:
ACR ET Series Temperature Probes or any NTC thermistor probe

Order Information

MODEL	MEMORY	CATALOG #
SRP-008	32 KB	01-0015
SRP-008-128K	128 KB	01-0129
SRP-008-1.5M	1.5 MB	01-0158

FEATURES

- Eight channels
- Monitor temperature in eight different locations
- Use with a variety of different temperature probes:
  - General purpose
  - High temperature
  - Low temperature
  - Waterproof temperature
  - Oven temperature
  - Skin surface temperature
  - Pipe surface temperature

SmartReader Plus 9

Two-Channel Pulse Data Logger

The SmartReader Plus 9 is a versatile data logger designed for easy counting and recording of digital pulses or switch contact closures. It has two pulse/contact input channels. Data can be displayed in custom engineering units using the simple equation editor of ACR's TrendReader® 2 software.

PRODUCT SPECIFICATIONS

No. of Channels:
Two - Two for externally-generated pulse signals and dry switch contact closures

Pulse Inputs:
Range: 4095 pulses/sample period
Accuracy: +/- 1 pulse/sample period
Max Voltage: +24/-22 volts DC
Input Impedance: > 1.0 M ohm for Vin < 5V
> 4.0 K ohm for Vin > 5V

Min. Pulse Wide
50% Duty Cycle: Slow input: 2 milliseconds
Fast input: 10 microseconds

Voltage Inputs:
Input type:Active logic signals
Input voltage:Low = 0 to 0.5 volts DC
High = 4.5 to 24 volts DC

Switch Inputs:
Input Type: Uncommitted "dry" contacts (relay or switch)
Excitation: 5 microamps contact current
3.6 volts open circuit
Contacts: Sealed gold-plated recommended

Maximum Frequency:
100 KHz

Memory Size:
32 KB and 128 KB

Common Specifications:
See page 6

Software Specifications:
See page 32

Remote & Network Communications:
See page 35

Order Information

MODEL	MEMORY	CATALOG #
SRP-009	32 KB	01-0016
SRP-009-128K	128 KB	01-0130

FEATURES

- Two channels
- Count digital pulses or dry switch contact closures (i.e. on/off, open/close)
- Select slow or fast input
- Count up to 4095 pulses per sample period

SmartReader Plus 10

Four-Channel Temperature (RTD) Data Logger

The SmartReader Plus 10 data logger is designed to precisely measure temperature over a wider temperature range than a thermistor without sacrificing accuracy or resolution. With four channels, measurements can be made in several different locations.

FEATURES

- Four channels
- Monitor temperature in four different locations
- Wide temperature range
- Extreme precision and accuracy
- Choose own RTD probe

PRODUCT SPECIFICATIONS

No. of Channels:
Four - One for ambient temperature
- Three for temperature (with RTD probes)

RTD Type:
Any 100 or 1000 Ohm Platinum RTD with a Temperature Coefficient of Resistance (TCR) of 0.00385

Accuracy (100 and 1000 Ohm):
+/- 0.3ºC (+/- 0.54ºF) + resolution

Resolution (100 and 1000 Ohm):
+/- 0.14°C (+/- 0.25°F)

Temperature Range (100 and 1000 Ohm):
-230 to 300ºC (-382 to 572ºF)

Wiring Configurations:
2, 3, or 4 wire RTDs

Memory Size:
128 KB

Common Specifications:
See page 6

Software Specifications:
See page 32

Remote & Network Communications:
See page 35

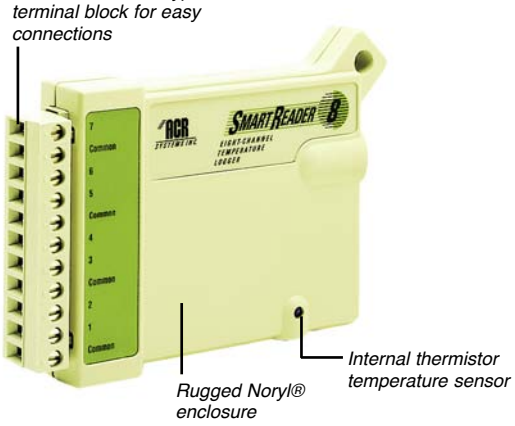
Order Information

MODEL	MEMORY	CATALOG #
SRP-010-128K	128 KB	01-0132

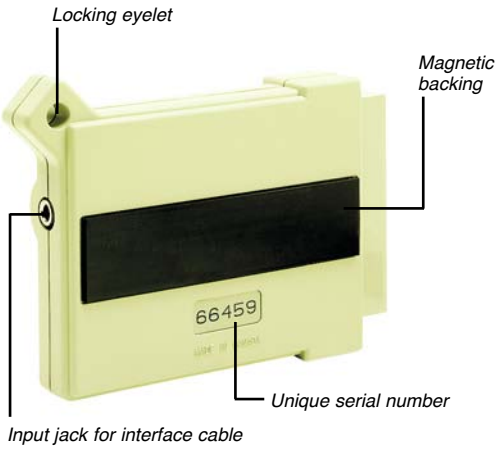
SmartReader - Common Specifications

Multi-Channel, Configurable, 8-Bit Data Loggers

Front


Removable screw-type terminal block for easy connections
Rugged Noryl® enclosure
Internal thermistor temperature sensor

Back



FEATURES

- Multiple channels
- Monitor a variety of parameters:
  - Temperature
  - Relative Humidity
  - Current
  - Voltage
  - Pressure
  - Process Signals
  - Pulse
- 8-bit resolution
- 10-year battery life
- 3-year warranty
- 32 KB memory
- Remote access via modem or Ethernet
- User configurable

PRODUCT SPECIFICATIONS

SmartReader data loggers share many common features. For further specifications on individual models, refer to pages 16-20.

Size:
107 mm x 74 mm x 22 mm (4.2" x 2.9" x 0.9")
Weight:
110 g (3.75 oz)
Case Material:
Noryl® plastic
External Connector:
Removable screw-type terminal strip with Common (-) connection
Mounting:
Magnetic backing or locking eyelet
Operating Limits:
-40 to 70ºC (-40 to 158ºF) and 0 to 95% relative humidity (non-condensing)
Clock Accuracy:
+/- 2 seconds per day
Battery:
3.6 volt Lithium, 1 Amp-Hour
Battery Life:
10 years under normal use (factory replaceable)
Power Consumption:
5 to 10 microamps (continuous)
Memory Size:
32 KB (32,767 readings)
Sampling Methods:
1.Continuous (First-in, First-out)
2.Stop when full (Fill-then-stop)
Sampling Rates:
User selectable rates from 8 seconds to once every 5 days
Resolution:
8-bit (1 part in 256)
PC Requirements:
PC running Windows 2000 SP4, Windows XP SP1 or Windows Vista 32 bit. PC must have one free serial or USB port depending on connection.
Software Requirements:
TrendReader® 2 (see page 32 for details)

Certifications and Standards:
- Certified to CE standard EN50082-1: 1992 (European Generic Immunity) covering ESD, RFI, and EFT/B
- Meets CE standards EN55011 Class B: 1991 (European Radiated Emissions) and CISPR Class B: 1991 (International Radiated Emissions)

Resistance to X-Rays:
- Tested for protection against a 160kV dose @ 5mA for 30 seconds (150mA-sec) @ 38 inches F.F.D. (about 100 times that of an airport x-ray machine)
- Tested for protection against Gamma Ray (equivalent to 0.137-1.38 mega volts) IR 192 - 28 curies @ 30 second exposure source to object distance 5"

INTERNAL TEMPERATURE SENSOR
(common on all models)

Type:
Negative Temperature Coefficient Thermistor
10,000 ohms @ 25ºC (77ºF)
Accuracy:
+/- 0.2ºC over the range of 0 to 70ºC (+/- 0.3ºF over the range of 32 to 158ºF)
Range:
-40 to 70ºC (-40 to 158ºF)
Resolution:
0.4ºC (0.7ºF) @ 25ºC; better than 1ºC (1.8ºF) between -25 and 70°C (-13º and 158ºF); better than 2.0ºC (3.6°F) between -40 and -25°C (-40ºF and -13ºF)

SmartReader 1

Two-Channel Temperature (Thermistor) Data Logger

The SmartReader 1 data logger is a simple and easy-to-use data logger for monitoring and recording temperature. Quick and easy to set up, it works right out of the box, logging temperature readings from its internal, precision-calibrated temperature sensor. For added versatility, use the extra channel to record temperature (with an ACR thermistor probe), resistance or switch status.

FEATURES

- Two channels
- Monitor and record temperature
- Option to monitor remote temperature, resistance or switch status
- Use with a variety of different temperature probes:
  - General purpose
  - High temperature
  - Low temperature
  - Waterproof temperature
  - Oven temperature
  - Skin surface temperature
  - Pipe surface temperature

PRODUCT SPECIFICATIONS

No. of Channels:
Two - One for ambient temperature
- One for temperature (with thermistor probe), resistance, or switch status

Memory Size:
32 KB

Common Specifications:
See page 15

Software Specifications:
See page 32

Accessories:
ACR ET Series Temperature Probes or any NTC thermistor probe

Order Information

MODEL	MEMORY	CATALOG #
SR-001	32 KB	01-0024

SmartReader 2

Four-Channel Temperature and Relative Humidity Data Logger

The SmartReader 2 data logger has a built-in temperature sensor, a plug-in relative humidity sensor and is equipped with two extra channels to connect either ACR's temperature/RH probe or thermistor probes. The RH plug-in sensor is field replaceable so you can always be assured of continuous recording. The SmartReader 2 is excellent for monitoring "air quality" conditions.

FEATURES

- Four channels
- Monitor and record temperature and relative humidity
- Option to monitor remote temperature, RH and/or resistance
- Use with a variety of different temperature probes (see list above)
- N.I.S.T. traceable measurements
- Includes calibration certificate

PRODUCT SPECIFICATIONS

No. of Channels:
Four - One for ambient temperature
- One for relative humidity (internal sensor)
- One for relative humidity (external sensor)
- One for temperature, resistance or switch status

Relative Humidity Sensor:
Capacitive thin polymer film

Range:
0 to 95% RH (non-condensing)

Accuracy:
+/- 4% RH from 10 to 90% RH (-20 to 40ºC [-4 to 104ºF])

Resolution:
Better than 0.4% between 25 and 60% RH at 25º C (77ºF)

Response Time:
Adequate ventilation increases the response time which is approximately 5 minutes in still air

Memory Size:
32 KB

Environmental Conditions:
Like all relative humidity sensors, when exposed to contaminants and/or extreme environmental conditions, accuracy degradation could result. For maximum long-term stability, sensor should not be exposed or subjected to organic solvents, corrosive agents (strong acids, SO_2, H_2SO_4, Cl_2, HCl, H_2S, etc.) and strong bases (compounds with PH greater than 7). Dust settling on the sensor surface will not affect sensor performance except possibly to decrease the speed of response.

Common Specifications:
See page 15

Software Specifications:
See page 32

Accessories:
ACR EH-020A Temperature & RH Probe
ACR ET Series Temperature Probe or any NTC thermistor probe

Order Information

MODEL	MEMORY	CATALOG #
SR-002	32 KB	01-0025

SmartReader 3

Four-Channel AC Current Data Logger

The SmartReader 3 data logger easily and conveniently records AC current. Simply connect the data logger to three ACR current probes (which are clamped around power leads) and begin recording three-phase systems or related equipment simultaneously. The probes allow accurate readings to be taken without interrupting any circuits. The logger also records ambient temperature.

PRODUCT SPECIFICATIONS

No. of Channels:
Four - One for ambient temperature
- Three for AC current (with ACR current probes)

Current Ranges*:
5, 25, 100, and 250 Amps - With A60FL (60 Hz) and A65FL (50 Hz) current probes
10, 50, 250, and 500 Amps - With A70FL (60 Hz) and A75FL (50 Hz) current probes
**Up to 3000 Amps with the ACR CT-50-1 current transformer*

Accuracy:
+/- 4% F.S. above 10% of range

Memory Size:
32 KB

Common Specifications:
See page 15

Software Specifications:
See page 32

Accessories:
ACR AC Current Probes
ACR CT-50-1 Current Transformer

Order Information

MODEL	MEMORY	CATALOG #
SR-003	32 KB	01-0026

FEATURES

- Four channels
- Monitor AC current and ambient temperature
- No interruptions

SmartReader 4

Five-Channel Pressure, Temperature and Relative Humidity Data Logger

The SmartReader 4 data logger records pressure, temperature and relative humidity. Use it to monitor and troubleshoot pneumatic systems. With a variety of pressure options (modules) available, you can tailor the logger to suit your needs. All probes and sensors are sold separately.

PRODUCT SPECIFICATIONS

No. of Channels:
Five - One for ambient temperature
- One for pressure
- One for relative humidity (internal sensor)
- Two for temperature and/or relative humidity

Calibrated Accuracy:
+/- 0.5% F.S. @ 25°C (77°F)

Memory Size:
32 KB

Common Specifications:
See page 15

Software Specifications:
See page 32

Accessories:
ACR Pressure Modules
ACR RH-002 RH Sensor
ACR EH-020A RH/Temperature Probe
ACR ET Series Temperature Probes or any NTC thermistor probe

PRESSURE MODULES

Range	Resolution	Gauge P/N	Catalog #	Absolute P/N	Catalog #
0 to 5 psi (30 kPa)	0.03 psi (0.21 kPa)	PM-005-G	01-0045	N/A	N/A
0 to 30 psi (200 kPa)	0.15 psi (1.0 kPa)	PM-030-G	01-0047	PM-030-A	01-0046
0 to 100 psi (700 kPa)	0.5 psi (3.5 kPa)	PM-100-G	01-0049	PM-100-A	01-0048
0 to 150 psi (1000 kPa)	0.5 psi (3.5 kPa)	PM-150-G	01-0086	N/A	N/A

Order Information

MODEL	MEMORY	CATALOG #
SR-004	32 KB	01-0027

FEATURES

- Five channels
- Monitor pressure, temperature and RH
- Interchangeable pressure modules
- Use with a variety of different temperature (thermistor) probes

SmartReader 5

Three-Channel Temperature (Thermocouple) Data Logger

The SmartReader 5 data logger is ideal for those applications that require monitoring extremely high temperatures or monitoring temperatures over a wide range. The logger has one internal channel for measuring ambient temperature and two external channels for use with ACR thermocouple wire or any J, K, S or T type thermocouple wire. One external channel is for a narrow range and the other external channel is for a wider range.

FEATURES

- Three channels
- Monitor extremely high temperatures
- Monitor temperature over a wide range
- Use with a variety of different thermo-couple probes

PRODUCT SPECIFICATIONS

No. of Channels:
Three - One for ambient temperature (also for cold-junction compensation)
- One for narrow range thermocouple temperature
- One for wide range thermocouple temperature

Accuracy:
+/- 1% of range + resolution*

Memory Size:
32 KB

Common Specifications:
See page 15

Software Specifications:
See page 32

Accessories:
ACR Thermocouple Wire or any J, K, S, or T type thermocouple wire

Order Information

MODEL	MEMORY	CATALOG #
SR-005	32 KB	01-0028

SmartReader 7

Eight-Channel Process Signal Data Logger

The SmartReader 7 is a versatile data logger that can monitor and record a variety of different process signals including the popular 4-20mA and 0-5V. With its seven input channels, the logger is ideal for monitoring (through commercially available transducers) a wide variety of measurement parameters such as flow, level, pressure, and much more. All process signals can be displayed in their own engineering units using the simple equation editor in ACR's TrendReader® 2 software.

FEATURES

- Eight channels
- Connect virtually any device that has an analog output
- Record a variety of parameters (i.e. flow, level, pressure, etc.)
- Several different models to choose from

PRODUCT SPECIFICATIONS

No. of Channels:
Eight - One for ambient temperature
- Seven for analog inputs

Standard Model:

Input type:	Input impedance:
0-2.5 V (1 channel)	Greater than 1M Ohm
0-5 V (2 channel)	20K Ohm
0-10 V (1 channel)	40.9K Ohm
0-200 mV (1 channel)	Greater than 1M Ohm
0-25 mA (2 channels)	100 Ohm

Other Models:
Input type (all external channels):
0-10 V
0-25 mA

Accuracy:
+/- 1% F.S.

Maximum Protection:
Voltage channels: +/- 40 volts (reverse-polarity protected)
Current channels: +/- 70 mA (reverse-polarity protected)

Transducer Restrictions:
It is recommended to use a single power supply or loop isolators to avoid ground loops.

Memory Size:
32 KB

Common Specifications:
See page 15

Software Specifications:
See page 32

Order Information

MODEL	INPUT RANGE(S)	MEMORY	CATALOG #
SR-007	Standard Model	32 KB	01-0031
SR-007-0-10V	0-10 Volt	32 KB	01-0041
SR-007-25mA	0-25 mA	32 KB	01-0032

SmartReader 8

Eight-Channel Temperature (Thermistor) Data Logger

The SmartReader 8 data logger can measure temperature in eight different locations simultaneously using ACR's ET series thermistor probes. Monitor and record high temperature, low temperature, pipe surface, skin surface, or a variety of other temperatures.

PRODUCT SPECIFICATIONS

No. of Channels:
Eight - One for ambient temperature
- Seven for temperature (with thermistors), resistance, or switch status

Memory Size:
32 KB

Common Specifications:
See page 15

Software Specifications:
See page 32

Accessories:
ACR ET Series Temperature Probe or any NTC thermistor probe

Order Information

MODEL	MEMORY	CATALOG #
SR-008	32 KB	01-0036

FEATURES

- Eight channels
- Monitor temperature in eight different locations
- Use with a variety of different temperature probes:
  - General purpose
  - High temperature
  - Low temperature
  - Waterproof temperature
  - Oven temperature
  - Skin surface temperature
  - Pipe surface temperature

SmartReader 9

Three-Channel Pulse Data Logger

The SmartReader 9 is a versatile data logger designed for counting and recording digital pulses or switch contact closures. It has two input channels, each with three selectable frequency ranges. Data can be displayed in custom engineering units using the simple equation editor of ACR's TrendReader® 2 software. It also has one internal channel for recording ambient temperature.

PRODUCT SPECIFICATIONS

No. of Channels:
Three - One for ambient temperature
- Two for externally-generated pulse signals or dry switch contact closures

Ranges:
32 pulses/second
64 pulses/second
128 pulses/second

Minimum Pulse Width:
4 milliseconds

Switch Contact Closure Input:
Input type: Uncommitted switch or relay contacts

Voltage Inputs:
Input type: Active logic signals
Input voltage: Low = 0 to 0.5 volts DC
High = 4.5 to 24 volts DC

Input Impedance:
750K ohms

Memory Size:
32 KB

Common Specifications:
See page 15

Software Specifications:
See page 32

Order Information

MODEL	MEMORY	CATALOG #
SR-009	32 KB	01-0037

FEATURES

- Three channels
- Count digital pulses or dry switch contact closures (i.e. on/off, open/close)
- User selectable frequency ranges

THR-1000

Two-Channel Temperature and Relative Humidity Data Logger

FEATURES

- Low-cost temperature and RH logger
- Easy to use
- No accessories required
- 5-year battery life
- User selectable sample method and rate
- NIST certificates available on special request

Built-in temperature and relative humidity sensors

Serial port plug

The TRH-1000 is a low-cost, easy-to-use temperature and relative humidity data logger. With its precision calibrated internal temperature and relative humidity sensor, simply place the logger in the field and leave it to record. Once the desired information has been recorded, plug the logger into your computer and begin downloading and viewing the logged data with ACR's TrendReader® Express software.

PRODUCT SPECIFICATIONS

Size:
25.4 mm x 58.4 mm x 81.3 mm (1" x 2.3" x 3.2")
Weight:
74 g (2.6 oz)
Case Material:
Cycoloy® (GE Plastics) C120 ABS + Polycarbonate
Mounting:
Magnetic backing and security loop
Operating Limits:
-40 to 70°C (-40 to 158°F) and 0 to 100% RH (non-condensing)
Clock Accuracy:
+/- 2 seconds per day
Battery:
3.6 volt Lithium, 1 Amp-Hour
Battery Life:
5 years under normal use (factory replaceable)
Memory Size:
64 KB (32,640 readings per channel)
Sampling Methods*:
1. Continuous (First-in, First-out)
2. Stop when full (Fill-then-stop)

**Option to delay start*
Sampling Rates*:
User selectable from 8 seconds to 34 minutes
**Readings stored to memory can be spot or averaged over the sample interval (except for the 8 second interval)*
Resolution:
8-bit (1 part in 256)
PC Requirements:
PC running Windows 2000 SP4, Windows XP SP1 or Windows Vista 32 bit. PC must have one free serial or USB port depending on connection.

Accessories:
USB to Serial adapter cable
Red port protector cap
Software Requirements:
TrendReader® Express (included, see page 33 for details) or TrendReader® 2 (optional, see page 32 for details)
Certifications and Standards:
- Certified to CE standard EN61326: 1997 + A1: 1998 (European Emissions and Immunity) covering ESD, RFI, EFT/B, Surge, Conducted Immunity, and Voltage Dips and Interruptions
- Meets FCC standard 47 CFR Part 15, Subpart B: 1999, Class B (US Radiated and Conducted Emissions)

SENSOR SPECIFICATIONS

Internal Temperature/Relative Humidity Sensor:

Type:	CMOSens® (by Sensiron)
Temp Range:	-40 to 70°C (-40 to 158°F)
Temp Accuracy:	+/- 0.6°C @ 25°C (+/- 1.0°F @ 77°F) +/- 2.0°C from -40 to 70°C (+/- 3.6°F from -40 to 158°F)
RH Range:	0 to 100% RH (non-condensing)
RH Accuracy:	+/- 4% RH between 20 and 80% RH; otherwise +/- 5%

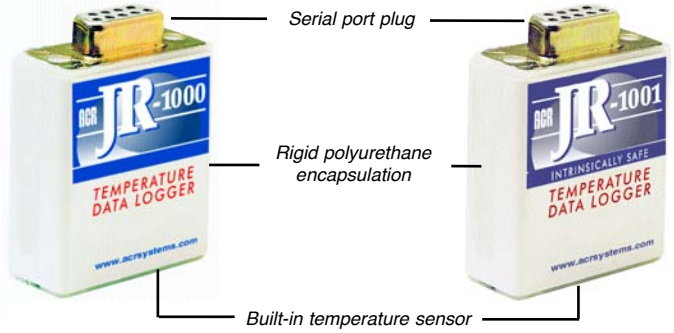
Calibration:
Factory calibration verification and NIST certificates are available upon special request.

Order Information

MODEL	DESCRIPTION	CATALOG #
TRH-1000-SP	TRH-1000 Starter Pack includes: TRH-1000 2-channel, 8 bit, 64 KB data logger (One ambient temperature and one ambient RH channel), TrendReader Express software, USB adapter cable and manual.	01-0194
TRH-1000	TRH-1000 2-channel, 8 bit, 64 KB data logger (One ambient temperature and one ambient RH channel). (Data logger only; no software or cable.)	01-0198

JR-1000 / JR-1001(Intrinsically Safe)

Single Channel Temperature Data Logger



General Purpose **Intrinsically Safe**

The JR-1000 series is the easiest to use temperature data logger available. With its precision calibrated internal temperature sensor, simply place the logger in the field and leave it to record. Once the desired information has been recorded, plug the logger into your computer and begin downloading and viewing the logged data with ACR's TrendReader® Express software.

PRODUCT SPECIFICATIONS

Size:
33 mm x 43 mm x 20 mm (1.3" x 1.7" x 0.75")
Weight:
35 g (1.23 oz)
Case Material:
Polyurethane
Mounting:
Magnetic backing (JR-1000 only)
Operating Limits:
-40 to 85ºC (-40 to 185ºF) and 0 to 95% RH (non-condensing)
Clock Accuracy:
+/- 2 seconds per day
Battery:
3.6 volt Lithium, 0.45 Amp-Hour
Battery Life:
5 years under normal use
Memory Size:
32 KB (capable of storing up to 244,800 data points when data compression is selected)
Sampling Methods*:
1. Continuous (First-in, First-out)
2. Stop when full (Fill-then-stop)
Option to delay start
Sampling Rates*:
User selectable rates from 8 seconds to 34 minutes
**Readings stored to memory can be spot or averaged over the sample interval (except for the 8 second interval)*
Resolution:
8-bit (1 part in 256)
PC Requirements:
PC running Windows 2000 SP4, Windows XP SP1 or Windows Vista 32 bit. PC must have one free serial or USB port depending on connection.
Software Requirements:
TrendReader® Express (included with Starter Pack, see page 33 for details) or TrendReader® 2 (optional, see page 32 for details)

Accessories:
USB to Serial adapter cable
Red port protection cap
Certifications and Standards:
- Certified to CE standard EN61326: 1997 + A1: 1998 (European Emissions and Immunity) covering Radiated Electromagnetic Field, ESD and RFI
- Meets FCC standard 47 CFR Part 15, Subpart B: 1999, Class B (US Radiated and Conducted Emissions)

Product Approvals (JR-1001 only):
- UL approved Intrinsically Safe for use in Class I, Division 1, Groups A, B, C & D, Class II, Division I, groups E, F & G, Class III, Division I Hazardous Locations T3C

Resistance to X-Rays:
- Tested for protection against a 160kV dose @ 5mA for 30 seconds (150mA-sec) @ 38 inches F.F.D. (about 100 times that of an airport x-ray machine)
- Tested for protection against Gamma Ray (equivalent to 0.137-1.38 mega volts) IR 192 - 28 curies @ 30 second exposure source to object distance 5"

INTERNAL TEMPERATURE SENSOR

Type:
Negative Temperature Coefficient Thermistor 10,000 ohms @ 25ºC (77ºF)
Range:
-40 to 85ºC (-40 to 185ºF)
Accuracy:
+/- 0.2ºC over the range of 0 to 70ºC (+/- 0.3ºF over the range of 32 to 158ºF)
Resolution:
0.4ºC (0.7ºF) @ 25ºC; better than 1ºC (1.8ºF) between -25 and 70°C (-13º and 158ºF); better than 2.0ºC (3.6°F) between -40 and -25°C (-40ºF and -13ºF)

Order Information

MODEL	DESCRIPTION	CATALOG #
JR-1000-SP	JR-1000 Starter Pack includes: JR-1000 (General Purpose) single channel, 8 bit, 32 KB data logger, TrendReader Express software, USB adapter cable and manual.	01-0192
JR-1000	JR-1000 single channel, 8 bit, 32 KB data logger. (Data logger only; no software or cable.)	01-0196
JR-1001	JR-1001 (Intrinsically Safe) single channel, 8 bit, 32 KB data logger. (Data logger, TrendReader Express software and manual only; USB adapter cable not included.)	01-0193

FEATURES

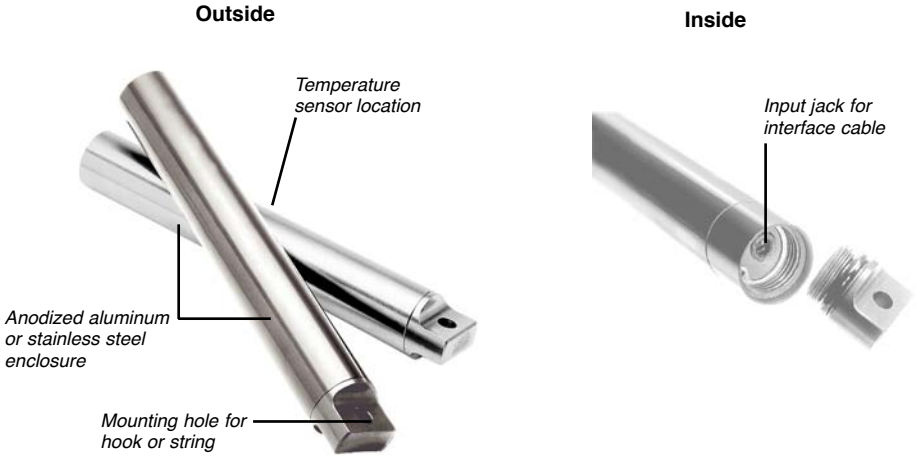
- Low-cost logger
- Intrinsically Safe version available (JR-1001)
- 5-year battery life
- User configurable
- Data compression capability - store up to 244,800 readings
- No accessories required
- Extremely durable

Nautilus85 / Nautilus135

Single Channel, Waterproof, Temperature Data Loggers

FEATURES

- Monitor temperature in water, food or other liquids
- Available in stainless steel or aluminum
- Extremely durable and robust
- 10 year battery life
- Data compression capability
- Holds over 500 days of data
- User selectable sample methods and rates



The Nautilus85 and 135 are durable, robust data loggers that can monitor temperature in a variety of applications, but they are particularly well suited for the food and beverage, biomedical, pharmaceutical, and industries with hostile or "wet" environments (i.e. wastewater treatment plant). Housed in a stainless steel or aluminum casing, they can withstand virtually any environment and with an operating pressure range up to 2000 PSI, they are ideal for monitoring temperature in any type of water including oceans, ponds, rivers, streams and wastewater.

PRODUCT SPECIFICATIONS

Size:
18 mm x 127 mm (0.7"x 5.0")
Weight:
Aluminum case: 51 g (1.8 oz)
Stainless steel: case: 112 g (4.0 oz)
Case Material:
Anodized aluminum or stainless steel
Mounting:
Locking hole on cap
Operating Limits:
Nautilus85: -40 to 85ºC (-40 to 185ºF) and waterproof
Nautilus135: 10 to 135ºC (50 to 275ºF) and waterproof
Operating Pressure Range:
Up to 2000 PSI
Clock Accuracy:
+/- 2 seconds per day
Battery:
3.6 volt Lithium, 0.95 Amp-Hour
Battery Life*:
Nautilus85: 10 years under normal use
Nautilus135: 3 years under normal use
**Batteries factory replaceable in both models*
Power Consumption:
5 to 10 micro amps (continuous)
Memory Size:
32KB (up to 244,800 readings with data compression)

Sampling Methods*:
1. Continuous (First-in, First-out)
2. Stop when full (Fill-then-stop)
**Option to delay start*
Sampling Rates*:
User selectable from 8 seconds to 34 minutes
**Readings stored to memory can be spot or averaged over the sample interval (except for the 8 second interval)*
Resolution:
8-bit (1 part in 256)
PC Requirements:
PC running Windows 2000 SP4, Windows XP SP1 or Windows Vista 32 bit. PC must have one free serial or USB port depending on connection.
Software Requirements:
TrendReader® 2 (optional, see page 32 for details) or TrendReader® Express (required, see page 33 for details)

INTERNAL TEMPERATURE SENSOR

Type:
Negative Temperature Coefficient Thermistor
10,000 ohms @ 25ºC (77ºF)
Range:
Nautilus85: -40 to 85ºC (-40 to 185ºF)
Nautilus135: 10 to 135ºC (50 to 275ºF)
Sensor Accuracy:
Nautilus85: +/- 0.2ºC over the range of 0 to 70ºC (+/- 0.3ºF over the range of 32 to 158ºF)
Nautilus135: +/- 0.5ºC (+/- 0.9°F)

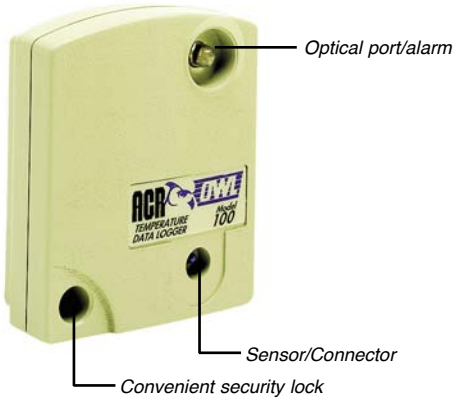
Order Information

MODEL	TYPE	CATALOG #
NTL-100	Nautilus85 - Aluminum	01-0261
NTL-101	Nautilus85 - Stainless Steel	01-0262
NTL-102	Nautilus135 - Aluminum	01-0263
NTL-103	Nautilus135 - Stainless Steel	01-0264

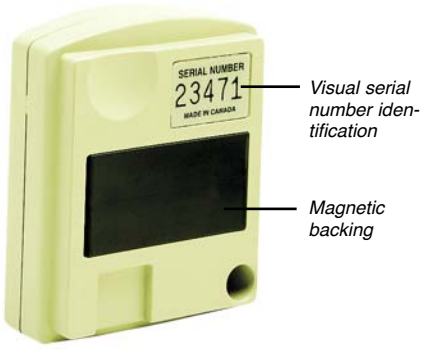
OWL - Common Specifications

Single Channel, Configurable, 8-Bit Data Loggers

Front



Back



FEATURES

- Single channel
- Monitor temperature, current, voltage or process signals
- 10-year battery life
- Flashing visual alarm
- Memory capacity of 32,767 readings
- Optical data transfer
- Fast sample capability

PRODUCT SPECIFICATIONS

OWL data loggers share many common features. For further specifications on individual models, refer to pages 25-27.

Size:
60 mm x 48 mm x 19 mm (2.4" x 1.9" x 0.7")
Weight:
54 g (1.9 oz) - all models except OWL 100-Poly
80 g (2.8 oz) - OWL 100-Poly (water-resistant model)
Case Material:
Noryl® plastic - all models except OWL 100-Poly
Polyurethane - OWL 100-Poly (water-resistant model)
External Connector:
Removable snap type connector
Mounting:
Locking eyelet or magnetic backing
Operating Limits:
-40 to 70ºC (-40 to 158ºF) and 0 to 95% RH (non-condensing) on non-watertight models
Clock Accuracy:
+/- 2 seconds per day
Battery:
3.6 volt Lithium
Battery Life:
10 years under normal use (factory replaceable)
Memory Size:
32 KB (32,767 readings)
Sampling Methods:
Delayed start or trigger start:
1. Continuous (First-in, First-out – not available with sample rates faster than 8 seconds)
2. Stop when full (Fill-then-stop)

Sampling Rates:
User selectable rates from 5 per second to once every 12 hours

Resolution:
8-bit (1 part in 256)
Communication:
Optical - send/receive data from up to 1" between logger and interface cable (with no obstructions)
Alarm Type:
Optical - flashing red LED
PC Requirements:
PC running Windows 2000 SP4, Windows XP SP1 or Windows Vista 32 bit. PC must have one free serial or USB port depending on connection.
Software Requirements:
TrendReader® 2 (see page 32 for details)
Certifications and Standards:
- Certified to CE standard EN50082-1: 1992 (European Generic Immunity) covering ESD, RFI and EFT/B
- Meets CE standards EN55011 Class B: 1991 (European Radiated Emissions) and CISPR Class B: 1991 (International Radiated Emissions)

Resistance to X-Rays:
- Tested for protection against a 160kV dose @ 5mA for 30 seconds (150mA-sec) @ 38 inches F.F.D. (about 100 times that of an airport x-ray machine)
- Tested for protection against Gamma Ray (equivalent to 0.137-1.38 mega volts) IR 192 - 28 curies @ 30 second exposure source to object distance 5"

OWL 100

Single Channel Ambient Temperature Data Logger

The OWL 100 data logger records temperature in environments that typical data loggers cannot withstand. This model is also available in a water-resistant polyurethane enclosure (OWL 100-Poly) so it can be used in hostile environments where vibration or excess moisture is present.

FEATURES

- Compact and small, monitor temperature virtually anywhere
- Water-resistant version available

PRODUCT SPECIFICATIONS

Thermistor Type:
NTC Thermistor (10K ohms @ 25ºC)
Range:
-40 to 70ºC (-40 to 158ºF)
Total Accuracy:
+/- 0.5ºC @ 25ºC (0.9ºF @ 77ºF)
Can be increased by using narrow range feature
Standard Resolution:
0.5ºC at 25ºC (0.9ºF @ 77ºF); better than 1ºC (1.8ºF) between -25 and 70ºC (-13 and 158ºF); better than 2.0ºC (3.6ºF) between -40 and -25ºC (-40 and -13ºF)
Can be increased by using narrow range feature

Submergence Rating (OWL 100-Poly):
IP67 - 1 m depth (3.28 ft) in fresh water for 30 minutes
Memory Size:
32 KB
Common Specifications:
See page 23
Software Specifications:
See page 32

Order Information

MODEL	CASE	CATALOG #
OWL-100 POLY	Water-resistant Poly	01-0050
OWL-100 PLASTIC	NORYL® Plastic	01-0250

OWL 200

Single Channel Temperature (Thermistor) Data Logger

The OWL 200 data logger can record temperature, resistance, or switch status. It can be placed in tight environments where typical data loggers cannot fit. Connect any one of ACR's ET series thermistor probes to the logger and begin recording. Monitor and record high temperature, low temperature, pipe surface, skin surface, or a variety of other temperatures.

FEATURES

- Monitor temperature virtually anywhere
- Use with a variety of different temperature probes:
  - General purpose
  - High temperature
  - Low temperature
  - Waterproof temperature
  - Oven temperature
  - Skin surface temperature
  - Pipe surface temperature

PRODUCT SPECIFICATIONS

Range:
Varies depending on probe selected
Logger Accuracy:
+/- 1% of range
Memory Size:
32 KB
Common Specifications:
See page 23

Software Specifications:
See page 32
Accessories:
ACR OWL ET Series Temperature Probes or any NTC thermistor probe

Order Information

MODEL	CASE	CATALOG #
OWL-200 PLASTIC	NORYL® Plastic	01-0251

OWL 300

Single Channel AC Current Data Logger

The OWL 300 data logger records electric current in applications where typical data loggers cannot fit. Due to its small size, the OWL 300 can go directly into an electrical panel or even inside small electrical equipment allowing the user to record electric current in a safe, discreet, and convenient manner.

FEATURES

- Monitor a wide range of AC current
- Sense AC current from inside equipment

PRODUCT SPECIFICATIONS

Frequency Ranges:
60 Hz - with A60FL and A70FL current probes
50 Hz - with A65FL and A75FL current probes

Current Ranges*:
5, 25, 100, and 250 Amps - With OWL A60FL and OWL A65FL current probes
10, 50, 250, and 500 Amps - With OWL A70FL and OWL A75FL current probes
**Up to 3000 Amps with the ACR CT-50-2 current transformer*

Accuracy:
+/- 4% F.S. above 10% of range

Memory Size:
32 KB

Common Specifications:
See page 23

Software Specifications:
See page 32

Accessories:
OWL AC Current Probes

Order Information

MODEL	CASE	CATALOG #
OWL-300-PLASTIC	NORYL® Plastic	01-0252

OWL 400

Single Channel Process Signal (DC Voltage) Data Logger

The OWL 400 is a rugged and versatile data logger that records DC voltage with ease and convenience. Ideal for monitoring (through commercially available transducers) a wide variety of measurement parameters. All voltage signals can be converted into custom engineering units using the simple equation editor in ACR's TrendReader® 2 software.

FEATURES

- Connect virtually any device that has an analog output between 0-40 V
- Record a variety of parameters (i.e. flow, level, pressure, etc.)

PRODUCT SPECIFICATIONS

Input Range:
0 to 38.4 Volts DC (software selectable ranges available)

Input Impedance:
Greater than 100K Ohm

Accuracy:
+/- 1% of full scale

Memory Size:
32 KB

Common Specifications:
See page 23

Software Specifications:
See page 32

Order Information

MODEL	CASE	CATALOG #
OWL-400 PLASTIC	NORYL® Plastic	01-0253

OWL 500

Single Channel Process Signal (4-20mA) Data Logger

The OWL 500 is a rugged and versatile data logger that records the popular 4-20mA process signal with ease and convenience. It is ideal for monitoring (through commercially available transducers) a wide variety of measurement parameters. All current process signals can be converted into custom engineering units using the simple equation editor in ACR's TrendReader® 2 software.

FEATURES

- Connect virtually any device that has a 4-20mA output
- Record a variety of parameters (i.e. flow, level, pressure, etc.)

PRODUCT SPECIFICATIONS

Input Range:
0 to 24 mA DC
Input Impedance:
100 Ohm
Accuracy:
+/- 1% of full scale

Memory Size:
32 KB
Common Specifications:
See page 23
Software Specifications:
See page 32

Order Information

MODEL	CASE	CATALOG #
OWL-500 PLASTIC	NORYL® Plastic	01-0254

SmartButton

Single Channel Temperature Data Logger

The ACR SmartButton is a miniature-sized temperature logger that is extremely low-cost and easy to use. Because of their small size and low-cost, you can purchase tens or hundreds of them for multiple-site temperature monitoring. To get you started, purchase the SmartButton Starter Pack. It includes one SmartButton, an interface cable, the SmartButton Reader software, and a mini manual. So simple and easy to use, anyone can start data logging today!

FEATURES

- Extremely small and low cost
- Multiple-site temperature monitoring (if more than one purchased)
- Record readings up to one year
- "Plug and play" ease of use
- User configurable

PRODUCT SPECIFICATIONS

Size:
17 mm diameter x 6 mm height (0.67" x 0.24")
Weight:
4 g (0.14 oz)
Case Material:
Stainless steel
Mounting:
Magnetic backing, plastic plate mount, or angled blue hard plastic
Operating Limits
-40 to 85°C (-40 to 185°F)
Clock Accuracy:
+/- 2 minutes per month from 0 to 45°C (32 to 113°F)
Battery:
3.0 volt Lithium
Memory Size:
2 KB (2,048 readings)
Sampling Methods:
1. Continuous (First-in, First-out)
2. Stop when full (Fill-then-stop)
Sampling Rates:
User selectable rates from 1 minute to 255 minutes
Readings:
Minimum - 2,048 @ 1 per min = 1.4 days
Maximum - 2,048 @ 255 per min = 363 days
Resolution:
8-bit (1 part in 256)

PC Requirements:
PC running Windows XP SP3, Windows Vista SP2 or Windows 7 (32bit). PC must have one free USB port.
Software Requirements:
SmartButton Reader (included with starter pack, see page 33 for details)
Accessories:
USB interface cable
Mounting accessories (magnetic backing strip, plastic plate mount, angled blue hard plastic)

INTERNAL TEMPERATURE SENSOR

Type:
Silicon
Range:
-40° to 85°C (-40 to 185°F)
Accuracy:
+/- 1.0° C (1.8°F) from -30 to 45°C (-22 to 113°F)
+/- 1.5° C (2.7°F) from 45.5 to 85°C (114 to 158°F) and -30 to -40°C (-22 to -40°F)
Resolution:
0.5°C (0.9°F)
Resolution:
0.4ºC @ 25ºC. (0.7ºF @ 77ºF)

Order Information

MODEL	TYPE	CATALOG #
ACRSB-SP-USB	USB interface cable	01-0182
ACRSB	SmartButton (single)	01-0180

Conservation Logger

Five-Channel Temperature, RH and 5V Input Data Logger

FEATURES

- Monitor and record temperature, RH and any parameter with a 0-5VDC output
- Visual alarm
- 12-bit resolution
- 5-year battery life
- 128 KB memory (87,000 readings)
- Fast sample rates (up to 25 samples per second)
- Network capable
- Remote access via modem or Ethernet
- User configurable

The Conservation Logger is a self-contained temperature and relative humidity logger with two external channels for use with a variety of sensors. It is equipped with an LED light that will alert the user if measurements raise above set limits. With 12-bit resolution, user selectable sample rates, 5-year battery life and an LED light for visual alarming, it is the ideal solution for museums, libraries and archives where temperature, humidity and light are important factors to the preservation and conservation of precious, valuable items.*

** When used in conjunction with a light sensor*

PRODUCT SPECIFICATIONS

Size:
107 mm x 74 mm x 22 mm (4.2" x 2.9" x 0.9")
Weight:
110 g (3.75 oz)
Case Material:
Noryl® plastic
Mounting:
Magnetic backing or lock eyelet
Operating Limits:
-40 to 70° C (-40 to 158° F) and 0 to 95% relative humidity (non-condensing)
Clock Accuracy:
+/- 2 seconds per day
Battery:
3.6 volt Lithium, 1 Amp-Hour
Battery Life:
5 years under normal use (factory replaceable)
Memory Size:
128 KB (87,000 readings)
Sampling Methods:
1. Continuous (First-in, First-out – not available with sample rates faster than 8 seconds)
2. Stop when full (Fill-then-stop)

Sampling Rates:
User selectable rates from 25 per second (0.04 seconds) to once every 8 hrs*
**BP-101 Battery Pack or PS-201 Power Supply required for sample rates faster than 8 seconds (see Accessories section for details)*

Resolution:
12-bit (1 part in 4096)
PC Requirements:
PC running Windows 2000 SP4, Windows XP SP1 or Windows Vista 32 bit. PC must have one free serial or USB port depending on connection.
Software Requirements:
TrendReader® 2 (see page 32 for details)

SENSOR SPECIFICATIONS

Temperature Sensor:

Type:	NTC Thermistor
Range:	-40 to 70ºC (-40 to 158ºF)
Accuracy:	+/- 0.2ºC over the range of 0 to 70ºC (+/- 0.3ºF over the range of 32 to 158ºF)
Resolution:	0.03ºC at 25°C (0.05ºF at 77°F); better than 0.07ºC (0.12°F) between -25 and 70°C (-13 and 158°F); better than 0.13ºC (0.23°F) between -40 and -25°C (-40 and -13°F)

RH Sensor:

Type:	Capacitive thin polymer film
Range:	0 to 95% RH
Accuracy:	+/- 3% RH from 10 to 90% (-20 to 40ºC [-4 to 104ºF])
Resolution:	Better than 0.04% RH between 25 and 60% RH at 25ºC (77ºF)

External Sensors (2):

Range:	Any two sensors with a 0-5 VDC output

Order Information

MODEL	MEMORY	CATALOG #
Conservation Logger	128 KB	01-0133

IAQ Logger

Temperature, Humidity and CO_2 Data Logging Solution

The IAQ Logger, when combined with the Telaire 7001 Handheld CO_2 Monitor, records the three leading indicators of indoor air quality: (1) temperature, (2) relative humidity, and (3) carbon dioxide. This IAQ solution is ideal for those applications requiring long-term, close monitoring and recording. Quickly and easily verify the temperature and CO_2 on the Telaire's large, easy-to-read display.

IAQ Logger shown with Telaire CO_2 monitor

FEATURES

- Monitor and record indoor air quality:
  - Temperature
  - Relative Humidity
  - Carbon Dioxide
- Real time display
- Option to monitor resistance, switch status or 2nd temperature and RH measurement

PRODUCT SPECIFICATIONS

IAQ LOGGER

Size:
107 mm x 74 mm x 2 2mm (4.2" x 2.9" x 0.9")
Weight:
110 g (3.75 oz)
Case Material:
Noryl® plastic
Mounting:
Magnetic backing or locking eyelet
Operating Limits:
-40 to 70ºC (-40 to 158ºF) and 0 to 95% RH (non-condensing)
Clock Accuracy:
+/- 2 seconds per day
Battery or Power Supply:
3.6 volt Lithium
Battery Life:
10 years under normal use
No. of Channels:
Five - One for ambient temperature
One for relative humidity
One for carbon dioxide
Two for temperature and/or RH (with ACR thermistor probes or ACR temp/RH probe)
Memory Size:
32 KB (32,767 readings)
Sampling Methods:
1. Continuous (First-in, First out)
2. Stop when full (Fill-then-stop)
Sampling Rates:
User selectable rates from 8 seconds to once every 5 days
Resolution:
8-bit (1 part in 256)
PC Requirements:
PC running Windows 2000 SP4, Windows XP SP1 or Windows Vista 32 bit. PC must have one free serial or USB port depending on connection.
Software Requirements:
TrendReader® 2 (see page 32 for details)

TELAIRE 7001

Size:
170 mm x 80 mm x 40 mm (6.7" x 3.1" x 1.6")
Weight:
280 g (9.9 oz)
Case Material:
ABS plastic
Mounting:
Pull-out stand
Operating Limits:
0 to 50°C (32 to 122°F) and 0 to 95% RH (non-condensing)
Power Supply:
6 VDC from external AC/DC adapter (included) or 4 AA batteries (not included)

SENSOR SPECIFICATIONS

Temperature Sensor (in IAQ Logger):
Type: NTC Thermistor
Range: -40 to 70ºC (-40 to 158ºF)
Accuracy: +/- 0.2ºC over the range of 0 to 70ºC (+/- 0.3ºF over the range of 32 to 158ºF)
Resolution: 0.4ºC (0.7ºF) @ 25ºC; better than 1ºC (1.8ºF) between -25 and 70°C (-13º and 158ºF); better than 2.0ºC (3.6°F) between -40 and -25°C (-40ºF and -13ºF)

RH Sensor (in IAQ Logger):
Type: Capacitive thin polymer film
Range: 0 to 95% RH
Accuracy: +/- 4% RH from 10 to 90% (-20 to 40ºC [-4 to 104ºF])
Resolution: Better than 0.4% RH between 25 and 60% RH at 25ºC (77ºF)

CO_2 Sensor (in Telaire):
Range: 0 to 4,000 ppm voltage output
0 to 10,000 ppm display
Sensitivity: +/- 1 ppm
Accuracy: +/- 50 ppm or +/- 5 % of reading (whichever is greater)
Repeatability: +/- 20 ppm

Order Information

MODEL	TYPE	CATALOG #
IAQ-100 System	IAQ Logger & Telaire 7001	01-0338
SR-IAQ	IAQ Logger only	01-0340
Telaire-7001	Telaire 7001 only	35-0034

PowerWatch

Voltage Disturbance Recorder

FEATURES

- Records essential voltage disturbance events:
  - Surges
  - Sags
  - Outages
  - Dropouts
  - Impulses
  - Frequency variations
- Records up to 4000 events
- 10-year battery life
- Safe, stand-alone operation
- No wires, alligator clips or other exposed wiring
- Hot-Neutral and Neutral-Ground monitoring

Front

Back

North America 120 Volt

Australia 240 Volt

United Kingdom 240 Volt

Continental Europe 240 Volt

Use the PowerWatch as your first line of defence against power quality problems. Simply plug it into any power receptacle (120-volt North American or 220/240-volt Australian, European or UK) and begin monitoring and recording essential voltage disturbance information - surges, sags, outages, impulses, dropouts, and frequency variations. Set up your pre-determined disturbance threshold values or use the industry standard default values using PowerWatch software. No wiring or dangerous connections are required.

PRODUCT SPECIFICATIONS

Size:
85 mm x 68 mm x 35 mm (3.35" x 2.65" x 1.35")
Weight:
120 g (4 oz)
Case Material:
Noryl® plastic
Operating Limits:
-40 to 70°C (-40 to 158°F) and 0 to 95% RH (non-condensing)
Battery:
3.6 volt Lithium
Battery Life:
10 years under normal use (factory replaceable)
Fuse:
1/16A fast-blow (non-replaceable)
Memory Size:
32KB (4,000 events)
Storage Method:
First-in, First-out or Fill-then-stop
Sampling Method:
Continuous (half cycle integrated)
Alarm Type:
Optical (flashing red LED)
PC Requirements:
PC running Windows 2000 SP4, Windows XP SP1 or Windows Vista 32 bit. PC must have one free serial or USB port depending on connection.
Software Requirements:
PowerWatch Software (required, see page 32 for details)
Certifications:
CSA, NRTL/C, and UL3111-1

MEASUREMENT SPECIFICATIONS:

Surge, Sag & Outage (120-volt version):

	Hot to Neutral	Neutral to Ground
Range:	0 to 200 V rms	3 to 200 V rms
Accuracy:	+/- 1 V rms + resolution	+/- 1 V rms + resolution
Resolution:	1 V rms	1 V rms

Surge, Sag & Outage (220/240-volt version):

	Hot to Neutral	Neutral to Ground
Range:	0 to 400 V rms	3 to 200 V rms
Accuracy:	+/- 2 V rms + resolution	+/- 1 V rms + resolution
Resolution:	2 V rms	1 V rms

Impulse:

	Hot to Neutral	Neutral to Ground
Range:	100 to 2500 V peak	50 to 2500 V peak
Accuracy:	+/- 10% of reading + resolution	+/- 10% of reading + resolution
Resolution:	10 V	10 V
Width Detection:	1 µsec minimum	1 µsec minimum
Phase Angle:		
Accuracy:	+/- 1° (20 to 180°, 200 to 360°)	+/- 1° (20 to 180°, 200 to 360°)
Resolution:	1°	1°

Frequency:

Range:	45 to 65 Hz
Accuracy:	+/- 0.1 Hz (3 cycles minimum)
Resolution:	0.1 Hz

Time:

	Hot to Neutral	Neutral to Ground
Events (< 1 sec):		
Accuracy:	+/- 0.5 cycle	+/- 1 cycle
Resolution:	0.5 cycle	1 cycle
Time-stamp (> 1 sec):		
Accuracy:	+/- 2 sec/day + resolution	
Resolution:	8 seconds	

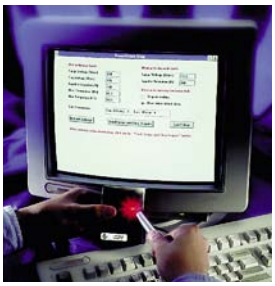
Order Information

MODEL	COMPATIBILITY	CATALOG #
PWV-001	North America	01-0066
PWV-002-A	Australia	01-0205
PWV-002-U	United Kingdom	01-0200
PWV-002-E	Europe	01-0215

PowerWatch Software

For PowerWatch Voltage Disturbance Recorder

Compatible with Windows® 2000 SP4, XP SP3 and Vista 32 bit



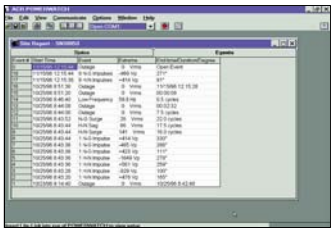
Easy setup and downloading

This powerful and easy-to-use power quality analysis software program is developed exclusively for ACR's voltage disturbance recorder, the PowerWatch. With no programming hassles or complex menus, setup and downloading occurs in seconds. Connection is simple: plug the optical interface cable (LIC-101 cable) into the serial port of your computer and point the other end to the optical port on the PowerWatch. Communication begins immediately. Detailed site reports are displayed for every voltage disturbance event recorded including:

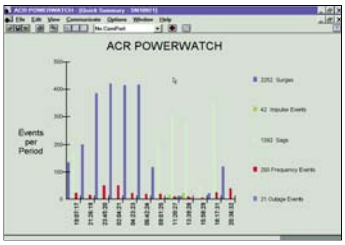
- Hot-to-Neutral and/or Neutral-to-Ground Surges
- Hot-to-Neutral and/or Neutral-to-Ground Sags
- Hot-to-Neutral and/or Neutral-to-Ground Impulses
- Outages
- Frequency Variations

With the Quick Summary option, all events are summarized and displayed individually in a bar graph format. This helps determine power quality trends quickly and effectively. The Event Distribution Graph plots the magnitude of events against duration on a logarithmic scale, allowing you to determine the importance of the data (a single random event may not be as important as a cluster of events). The Event Distribution Graph also helps determine what kind of power quality problems you have as all 4000 events can be plotted on this graph. You have the choice of analyzing hot-to-neutral or neutral-to-ground events or showing both in different colors. The CBEMA Curve can be used to determine the importance of each event.

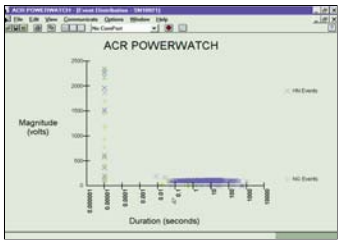
Detailed Site Reports



Quick Summary



Event Distribution Graph



Order Information

MODEL	DESCRIPTION	CATALOG #
PWV-100-USB	PowerWatch Interface Package* (USB)	01-0231
PWV-100	PowerWatch Interface Package* (Serial)	01-0060
PW	PowerWatch Software - Full Install	34-0004

**Includes software on CD, interface cable, and manual*

FEATURES

- Simple and easy to use
- User-selectable threshold limits
- Detailed site reports
- Hot-to-neutral and neutral-to-ground readings
- Quick summary option
- Determine event importance

TrendReader® 2 Software

For SmartReader Plus, SmartReader, IAQ, OWL, TRH, JR and Nautilus Data Loggers - *Compatible with Windows® XP SP3, Windows Vista SP2, Windows 7 (32 and 64 bit versions)*

FEATURES

- Serial & USB port interface
- Fast and easy logger setup
- One-touch table views
- Presentation-quality graphs
- Multi-graph display
- Zooming capabilities
- Export capabilities (TXT, BMP, PDF, JPG or CSV formats)
- Real-time readings

TrendReader® 2 is a powerful, versatile, and easy-to-use software package designed exclusively for ACR's SmartReader Plus, SmartReader, IAQ, OWL, TRH, JR and Nautilus data loggers. Powerful features and easy setup enables logged data to be collected and thoroughly analyzed in seconds.

DOWNLOADING AND COMMUNICATING WITH DATA LOGGER

Set up, download and view information from a single data logger with ACR's IC-102 interface cable (included in software interface package). Connection is simple: plug the interface cable into the USB port of your computer and connect the other end to the logger. No tools, cards or docking stations are required. To communicate from a modem or a network of data loggers, see Networking and Remote Communications sheet.

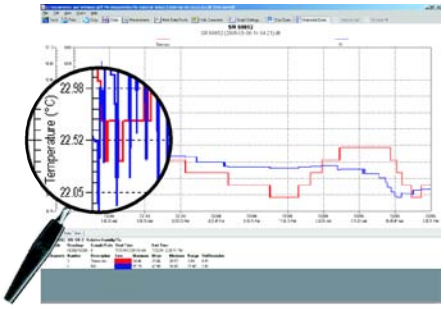
SETTING UP DATA LOGGER

With built-in menus for sample rate and mode, start delay, equations and more, logger setup is fast and easy. In addition, equations are already included for all ACR sensors so you need only select the appropriate equation from the menu or customize your own equation. Real-time readings are displayed in the Setup window, allowing you to verify that your logger is working correctly before placing it in the field.

Logger Setup

VIEWING DATA

With TrendReader® 2, data can be viewed in table or graphical format. For presentation purposes, view data in graphical format or for a more detailed analysis, view data in table format. Either way, multiple channels of data can be displayed at once. Multiple graphs can be displayed at once and compounded to create new graphs. For added presentation power, add comments, change graph colours, zoom in on specific portions of data, and display your data using custom engineering units. Print or copy and paste graphs into your reports and presentations. Select all or portions of the table and copy and paste into your favorite Windows® program.



Export Data

Use the export function in TrendReader® 2 to export your data to other programs for further analysis. Data can be exported in TXT, BMP, PDF, JPG or CSV formats.

Order Information

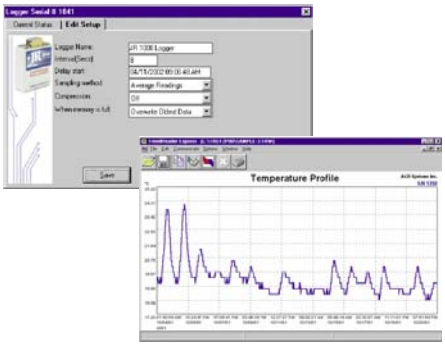
MODEL	DESCRIPTION	CATALOG #
TR2-w/IC-102	TrendReader 2/IC-102 USB Package*	01-0226
TR2-w/IC-101	TrendReader 2/IC-101 Serial Package*	01-0225
TR2-w/LIC-102	TrendReader 2/OWL USB Interface Package*	01-0230
TR2-w/LIC-101	TrendReader 2/OWL Serial Interface Package*	01-0227
TR2-Full Install	TrendReader 2 - Full Install	01-0228
TR2-Upgrade	TrendReader 2 - Upgrade	01-0229
TR2-Full License	TrendReader 2 - Full License	91-0000
TR2-Upgrade License	TrendReader 2 - Upgrade License	91-0001

**Includes software on CD, interface cable (USB or serial) and manual*

TrendReader® Express Software

–For JR-1000/1001, Nautilus85/135 and TRH-1000 Data Loggers - *Compatible with Windows® 2000 SP4, XP SP1 and Vista 32 bit*

TrendReader® Express is an enhanced software package designed exclusively for the JR-1000/1001, Nautilus85/135 and TRH-1000 data loggers. This easy-to-use software incorporates the advantages of simple functionality with advanced features that are normally associated with more expensive data acquisition software. Some of these features include: statistical and tabular displays, advanced graph control, zooming capabilities, scale units and auto scale, battery life indicator, and exporting capabilities.



Order Information

MODEL	DESCRIPTION	CATALOG #
TR-EXPRESS	TrendReader Express - Full Install	34-0017

FEATURES

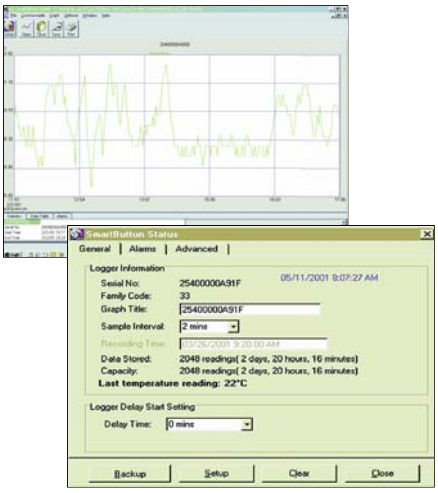
- Serial port interface
- "Plug-and-play" ease of use
- Zooming and graph control
- Battery life indicator
- Export capabilities

SmartButton Reader Software

For SmartButton Data Loggers

Compatible with Windows XP SP3, Windows Vista SP2 and Windows 7 32 bit

Presentation-quality graphs



SmartButton logger setup

Nothing is simpler to use than SmartButton Reader software. To set up, download or view information from an ACR SmartButton data logger, use an ACR SmartButton interface cable. Connection is simple: plug the interface cable into your computer (interface cable sold separately or with the starter pack), snap the SmartButton into the receptor (face down), and begin loading the software. Easy setup and powerful software features enables logged data to be collected and thoroughly analyzed in seconds. SmartButton Reader software comes complete with built-in menus for Sample Rate, Start Delay, Alarm Setups, and more. Logged data can be viewed in table format, permitting detailed analysis, or graphical format. For added presentation power, SmartButton Reader lets you change graph colors, zoom in on specific portions of data, and print to any Windows-compatible printer with ease. If you prefer to use Excel®, PowerPoint®, or other popular Windows® programs, data can be exported in ASCII or CSV formats.

Order Information

MODEL	DESCRIPTION	CATALOG #
ACRSB-SW	SmartButton Reader Software - Full Install	34-0010
ACRSB-USB-INT	SmartButton Interface Cable (USB)	01-0183
ACRSB-SP-USB	SmartButton Starter Pack (USB)	01-0182

FEATURES

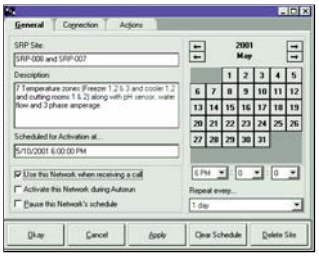
- Serial port interface
- Simple logger setup
- One-touch table views
- Presentation-quality graphs
- Multi-graph display
- Zooming capabilities
- Export capabilities

TalkBack Software

For SmartReader Plus Data Loggers

FEATURES

- Compatible with SmartReader Plus (SRP) data loggers
- Works with SRP networks (remote or local)
- Automatically downloads logged data
- Answers SRP alarms and will run a custom alarm macro



TalkBack software has two main features: (1) it automatically downloads logged information from any SmartReader Plus data logger and (2) it responds to SmartReader Plus alarms. TalkBack also works with SRP data loggers that are on a local or remote network.

Auto-Backup Feature

To automatically download information from a SmartReader Plus data logger, TalkBack will contact the logger (direct if local, by modem if remote), download the logger's information, and save it to the computer's hard drive at user-set intervals. This prevents manually backing up logged data when the logger's memory becomes full.

Alarm-Indicating Feature

TalkBack software can be set up to receive all tripped alarms from SmartReader Plus data loggers (initially set up in TrendReader® 2 software). When the data logger measures an exceeded value on any of its channels, the logger will call the computer and TalkBack will run an alarm macro, which has been set by you. Macro options include sounds, visual alarms, running of other programs, and calling a pager or cell phone with Caller ID capability.

Note: TalkBack software is only compatible with SmartReader Plus data loggers with a serial number of 42,508 or higer.

Order Information

MODEL	DESCRIPTION	CATALOG #
TBS-WIN	TalkBack Software	01-0076

Calibration Services

For SmartReader and SmartReader Plus Data Loggers

ACR Systems' data loggers are thoroughly tested during and after assembly to ensure that our customers obtain the most accurate information possible from our products. Most of ACR Systems' data loggers can then be re-calibrated as determined by usage characteristics of individual clients and ACR's own technical recommendations. In simple terms, loggers that have been regularly calibrated will help provide more reliable data logging results over the life of the logger.

Single Data Logger

With each logger shipped, ACR Systems includes a calibration card for reference in case the logger's setup is altered. In addition, each external humidity sensor has its own unique set of calibration values that must be entered into the logger's setup. For each humidity logger and humidity sensor, a calibration label is included.

Multiple Data Loggers

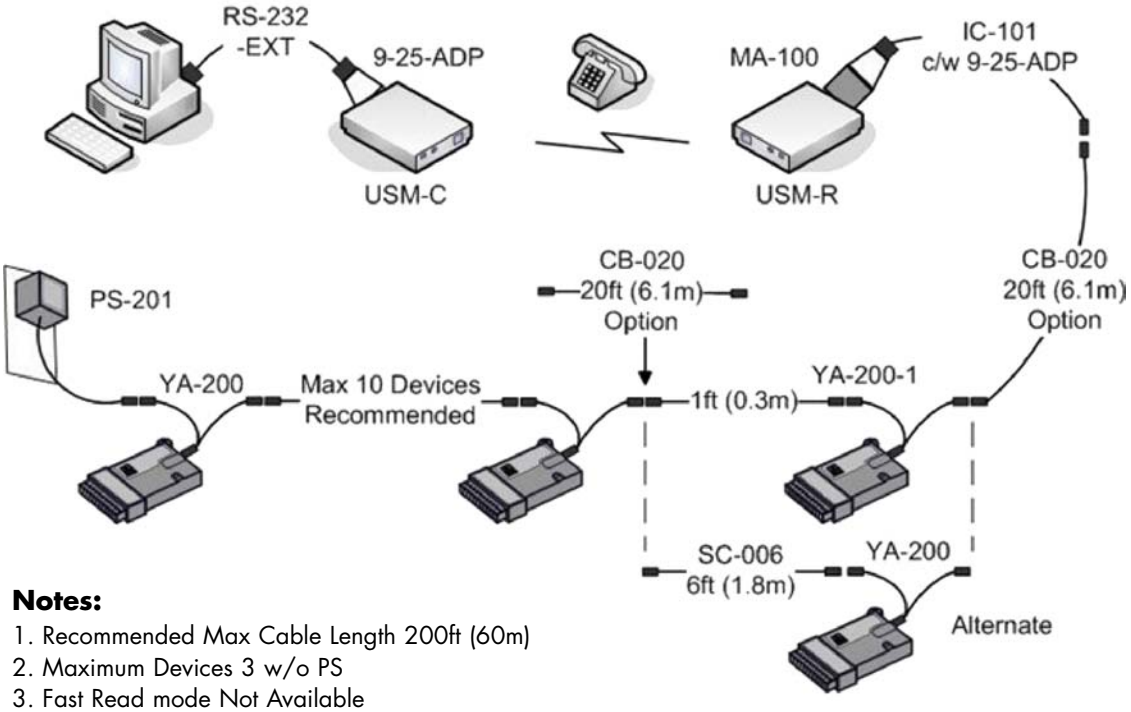
To minimize the expense of yearly calibrations for individual loggers, ACR has devised calibration packages for SmartReader and SmartReader Plus data loggers. These packages are designed to offer greater savings as larger number of calibrations are purchased.

Contact ACR Systems for order and pricing information.

Networking and Remote Communications

For SmartReader Plus Data Loggers

Convenient method of connecting up to 10 Networkable Data Loggers up to 200ft (60m) hooked to a remote modem.



Notes:

1. Recommended Max Cable Length 200ft (60m)
2. Maximum Devices 3 w/o PS
3. Fast Read mode Not Available
4. Reduce Baud Rate for more then Recommended

Order Information

MODEL	DESCRIPTION	CATALOG #
RS-232-EXT	Cable, Serial, 6ft (1.8m), 9-Pin, M-F	31-0017
9-25-ADP	Adapter, 9F-25M Pin Recommended	18-0014
USM-C	Modem, USRobotics, Computer Station*	01-0300
USM-R	Modem, USRobotics, Remote Station*	01-0301
MA-100	Modem Adapter, Null	18-0023
IC-101	Interface Cable, Serial, 3ft (0.9m) c/w 9-25 Pin Adapter	01-0068
YA-200-1	Adapter, Y, c/w 1ft (30cm) M-M Stereo Cable	01-0098
CB-020	Cable, Extension, 20ft (6m) M-F Stereo	31-0024
YA-200	Adapter, Y, w/o M-M Cable	31-0018
SC-006	Cable, Stereo, 6ft (1.8m) M-M	31-0009
PS-201-NA	Power Supply, North American, 120VAC	01-0165
PS-201-EU	Power Supply, European, 220VAC	01-0164

FEATURES

- Up to 10 loggers (80 channels) on one network
- Compatible with any modem
- Automatic data download
- Simple wiring; no hub required

SRP Display Module

For SmartReader Plus Data Loggers

FEATURES

- View real-time readings
- For use with SmartReader Plus data loggers
- Portable, battery powered and easy to use
- For verification and spot-checking purposes
- Optional power supply for continuous visual display

The SRP Display Module is an external display option for the SmartReader Plus line of data loggers. It is designed to let you view real-time readings of an SRP data logger. Use it for verification and spot checking purposes while the logger is still in the field, eliminating the need to bring the logger in to connect to a computer. The LCD display shows data in the units of the base channel type (i.e. volts, current, temperature, etc.) with the ability to convert between Celsius and Fahrenheit scales for channels measuring temperature. Operation is simple: use a stereo cable (included) to connect the device to an SRP data logger, push any button on the display module, and begin scrolling through the channels to view real-time readings. Like ACR's other products, the SRP Display Module is portable, battery-powered and easy to use.

SRP Display Module (black) shown with an SRP data logger

PRODUCT SPECIFICATIONS

Size:
26.6 mm x 126.9 mm x 76.2 mm (1.05" x 5.0" x 3.0")
Weight:
185 g (6.5 oz)
Display Window Size:
15.0 mm x 62.0 mm (0.56" x 2.5")
Display Type:
Liquid Crystal Display (LCD)

Font Size:
20 point
Batteries:
2 AA batteries (included)
Operating Limits:
0 to 50°C (32 to 122°F) and 0 to 95% RH (non-condensing)

Order Information

MODEL	DESCRIPTION	CATALOG #
SRP-DM	SRP Display Module	01-0171

Alarm Module 100

For SmartReader Plus Data Loggers

The Alarm Module is intended for use with the SmartReader Plus line of data loggers. It utilizes the alarm dial-out capability of the SRP data loggers, providing a blinking LED light and audio beeper to indicate that an alarm threshold has been tripped. The Alarm Module stays in alarm state until the reset button has been pressed. Additionally, two sets of relay contacts are provided for general purpose use. The Alarm Module can be used with a single data logger or with a network of data loggers. External power supply is required.

PRODUCT SPECIFICATIONS

Size:
107 mm x 74 mm x 22 mm (4.2" x 2.9" x 0.9")
Weight:
110 g (3.75 oz)

Case Material:
Noryl® plastic

Order Information

MODEL	DESCRIPTION	CATALOG #
AM-100-120	North American power supply	01-0167
AM-100-240	European power supply (Schuko plug)	01-0168

FEATURES

- Two alarm methods:
  - Blinking LED light
  - Audio beeper
- User-configurable
- Network capable
- Two-channel output

Accessories

SENSORS: Temperature – Thermistor Type

FEATURES/DESCRIPTION	RANGE/ACCURACY	LENGTH/SIZE	COMPATIBILITY	MODEL	CAT. NO.
1 GENERAL PURPOSE TEMPERATURE PROBE					
With its wide range, it is ideal for sensing temperature. The temperature sensor is housed inside a stainless steel tip for fast response time.	-35 to 95°C (-30 to 200°F) +/-0.2°C (0.4°F) from 0 to 70°C (32 to 158°F) +/-0.5°C (+/-0.9°F) from -35 to 0°C (-30 to 32°F)	Cable: 6 meters (20 feet) Probe: 25mm x 5mm (1" x 3/16")	SR1, SR2, SR4, SR8, SRP1, SRP2, SRP4, SRP8, OWL 200*	ET-016 OWL-ET-016	35-0001 01-0004
5 WATERPROOF TEMPERATURE PROBE					
This waterproof (IP-67 rated) temperature sensor is 10k ohms and has a wide operating range. This sensor conforms to the same specifications as the ET-016 temperature sensor. Please contact ACR for special adapter to connect to OWL 200.	-40 to 105°C (-40 to 221°F) +/-0.2°C (0.36°F) from 0 to 70°C (32 to 158°F)	Cable: 6 meters (20 feet) *optional angled connector (contact ACR)* Probe: 59.69mm length x 6.35mm diameter (2.35" x 0.25")	SR-001, SR-008, SRP-001, SRP-008	Waterproof Temperature Sensor	35-0035
1 LOW TEMPERATURE PROBE					
For applications where the center of the temperature sensing point will be approximately 0°C (32°F). The temperature sensor is housed inside a stainless steel tip for fast response time.	-60 to 55°C (-75 to 130°F) +/-0.2°C (0.4°F) from 0 to 55°C (32 to 113°F) +/-0.6°C (1.1°F) from -50 to -30°C (-58 to -22°F) +/-0.3°C (0.54°F) from -30 to 0°C (-22 to 32°F)	Cable: 6 meters (20 feet) Probe: From 25mm x 5mm (1"x 3/16")	SR1, SR2, SR4, SR8, SRP1, SRP2, SRP4, SRP8, OWL 200*	ET-004-GP OWL-ET-004-GP	35-0028 01-0111
2 LOW TEMPERATURE PENETRATION PROBE					
For applications where the center of the temperature sensing point will be approximately 0°C (32°F). The temperature sensor is housed inside a stainless steel probe for fast response time.	-60 to 55°C (-75 to 130°F) +/-0.2°C (0.4°F) from 0 to 55°C (32 to 113°F) +/-0.6°C (1.1°F) from -50 to -30°C (-58 to -22°F) +/-0.3°C (0.54°F) from -30 to 0°C (-22 to 32°F)	Cable: 3 meters (10 feet) Probe: 89mm long x 19mm diameter (3-1/2" x 3/4") tapered tip with tapered handle	SR1, SR2, SR4, SR8, SRP1, SRP2, SRP4, SRP8, OWL 200*	ET-004 OWL-ET-004	35-0000 01-0005
1 HIGH TEMPERATURE PROBE					
For applications where the center of the temperature sensing point will be approximately 80°C (176°F). The temperature sensor is housed inside a stainless steel tip for fast response time.	10 to 170°C (50 to 335°F) +/-0.5°C (0.9°F) from 10 to 170°C (50 to 335°F)	Cable: 6 meters (20 feet) Probe: 25mm x 5mm (1" x 3/16")	SR1, SR2, SR4, SR8, SRP1, SRP2, SRP4, SRP8, OWL 200*	ET-081 OWL-ET-081	35-0002 01-0006
1 OVEN TEMPERATURE PROBE					
For applications where the center of the temperature sensing point will be approximately 150°C (302°F). The temperature sensor is housed inside a tiny stainless steel tip for fast response time.	70 to 255°C (155 to 490°F) +/-1°C (1.8°F) from 70 to 255°C (155 to 490°F)	Cable: 6 meters (20 feet) Probe: 25mm x 5mm (1" x 3/16")	SR1, SR2, SR4, SR8, SRP1, SRP2, SRP4, SRP8, OWL 200*	ET-086 OWL-ET-086	35-0003 01-0007
3 SKIN SURFACE TEMPERATURE PROBE					
A simple external sensor used to monitor skin temperature on humans and animals. The center of the temperature point will be approximately 37°C (98.6°F). To mount the sensor, simply use medical tape to adhere the sensor onto the skin of the subject.	20 to 40°C (68 to 104°F) +/-0.2°C (0.36°F) @ 25°C (77°F) +/-0.1°C (0.18°F) @ 37°C (98.6°F)	Cable: 1.5 meters (5 feet) Probe: 9.7mm x 3.6mm (1/3" x 9/64")	SR1, SR2, SR4, SR8, SRP1, SRP2, SRP4, SRP8, OWL 200*	ET-016-STP OWL-ET-016-STP	35-0020 01-0109
4 PIPE SURFACE TEMPERATURE PROBE					
Convenient and easy to install, it wraps around any pipe less than 2" in diameter with its Velcro® strapping system. No tools required!	-35 to 95°C (-30 to 200°F) +/-0.2°C (0.4°F) from 0 to 70°C (32 to 158°F)	Cable: 6 meters (20 feet) Probe: 25mm x 5mm (1" x 3/16")	SR1, SR2, SR4, SR8, SRP1, SRP2, SRP4, SRP8, OWL 200*	ET-016-SMP OWL-ET-016-SMP	35-0025 01-0110

**Note: There are separate model and catalog numbers for OWL sensors. Cable length is 8 meters (25 feet).*

Accessories

FEATURES/DESCRIPTION	RANGE	LENGTH/SIZE	COMPATIBILITY	MODEL	CAT. NO.
SENSORS: Temperature – Thermocouple Type					
* NOTE: The maximum temperature tolerance for the thermocouple wire jacket is 200°C (392°F)					
1 J TYPE WELDED TIP THERMOCOUPLE WIRE					
Wire is 20 gauge with duplex insulated Teflon® jacket*.	-50 to 600°C (-55 to 1100°F)	30 cm (12")	SR5, SR6, SRP5, SRP6	TCJ-Welded	01-0102
1 K TYPE WELDED TIP THERMOCOUPLE WIRE					
Ideal for high temperature applications. Wire is 20 gauge with duplex insulated Teflon® jacket*.	-100 to 1150°C (-145 to 2100°F)	30 cm (12")	SR5, SR6, SRP5, SRP6.	TCK-Welded	01-0103
1 T TYPE WELDED TIP THERMOCOUPLE WIRE					
Ideal for low temperature applications. Wire is 20 gauge with duplex insulated PVC jacket*.	-200 to 400°C (-325 to 750°F)	30 cm (12")	SR5, SR6, SRP5, SRP6	TCT-Welded	01-0104
2 J TYPE BULK THERMOCOUPLE WIRE					
Wire is 20 gauge with duplex insulated Teflon® jacket*. Customer must either twist or weld the tip.	-50 to 600°C (-55 to 1100°F)	Specify length in feet	SR5, SR6, SRP5, SRP6	TCJ	31-0014
2 K TYPE BULK THERMOCOUPLE WIRE					
Ideal for high temperature applications. Wire is 20 gauge with duplex insulated Teflon® jacket*.Customer must either twist or weld the tip.	-100 to 1150°C (-145 to 2100°F)	Specify length in feet	SR5, SR6, SRP5, SRP6	TCK	31-0015
2 T TYPE BULK THERMOCOUPLE WIRE					
Ideal for low temperature applications. Wire is 20 gauge with duplex insulated PVC jacket*. Customer must either twist or weld the tip.	-200 to 400°C (-325 to 750°F)	Specify length in feet	SR5, SR6, SRP5, SRP6	TCT	31-0016
1 THERMOCOUPLE TIP WELDING SERVICE					
ACR can weld any thermocouple tip. Provides the best contact, preventing contaminants from affecting sensor reliability.	N/A	Order thermocouple wire separately	J, K, and T type thermocouples	TC-Weld	89-0003
SENSORS: Relative Humidity					
3 PLUG-IN REPLACEMENT RH SENSOR FOR POST 20,000 SERIAL # LOGGERS					
Relative humidity sensing element that simply plugs into the existing RH sensor port on compatible ACR RH data loggers. The sensor is equipped with a filter to protect it from many contaminants. For environmental susceptibility, see any ACR RH data logger specification.	10 to 90% RH and -20 to 40°C (-4 to 104°F)	N/A	SR2, SR4, SRP2	RH-002	35-0009
4 REMOTE RH AND TEMPERATURE SENSING PROBE FOR POST 20,000 SERIAL # LOGGERS					
An external Relative Humidity and Temperature Probe for tight or remote locations. Every RH reading is temperature compensated for accurate readings. For environmental susceptibility, see any ACR RH data logger specification. Maximum extension is 30m (100").	10 to 90% RH and -20 to 40°C (-4 to 104°F)	90 cm (3")	SR2, SR4, SRP2, SRP4* *(except SRP4 LPD)*	EH-020A	01-0040
RH CALIBRATION SERVICE					
Recalibration for ACR RH data loggers and external RH Probes. A 3-point calibration is performed against a NIST traceable reference sensor.	N/A	N/A	SR2, SR4, SRP2, SRP4, EH-020A	RH-CALIB	Call for RMA #

Accessories

FEATURES/DESCRIPTION	RANGE	LENGTH/SIZE	COMPATIBILITY	MODEL	CAT. NO.

SENSORS: Electrical – AC Voltage

1 120 VAC, 60 HZ SINGLE PHASE VOLTAGE TRANSDUCER

Converts a single phase, 120 VAC, 60 Hz power systems to a proportional 0 to 5 volt DC output.	0 to 150 V	79mm x 51mm x 104mm (3.1" x 2.0" x 4.1")	SRP3, SR7, SRP7, OWL 400	VT-1P	35-0110

480 VAC, 60 HZ THREE PHASE VOLTAGE TRANSDUCER

Converts a three phase, 480 VAC, 60 Hz power system to three proportional 0 to 5 volt DC outputs. (Not exactly as shown).	0 to 600 V (3-phase)	112mm x 97mm x 119mm (4.4" x 3.8" x 4.7")	SRP3, SR7, SRP7	VT-3P	35-0120

SENSORS: Electrical – AC Current

2 250 AMP, 60 HZ AC CURRENT PROBE AND 250 AMP, 50 HZ AC CURRENT PROBE

To easily data log AC current, simply clamp the ACR Current Probe around the electric lead. No tools or wiring required, permitting safe and reliable operation. Operating amperage ranges are switch selectable.	5, 25, 100, 250 Amps	1.5 m (5') Clamp inside diameter: 2.5 cm (1")	SR3, SRP3, OWL 300	A60FL (60 Hz version) OWL-A60FL*	35-0004 01-0000
				A65FL (50 Hz version) OWL-A65FL*	35-0006 01-0002

2 500 AMP, 60 HZ AC CURRENT PROBE AND 500 AMP, 50 HZ AC CURRENT PROBE

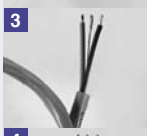
To easily data log AC current, simply clamp the ACR Current Probe around the electric lead. No tools or wiring required, permitting safe and reliable operation. Operating amperage ranges are switch selectable.	10, 50, 250, 500 Amps	1.5 m (5') Clamp inside diameter: 5cm (2")	SR3, SRP3, OWL 300	A70FL (60 Hz version) OWL-A70FL*	35-0005 01-0001
				A75FL (50 Hz version). OWL-A75FL*	35-0007 01-0003

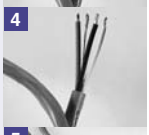
3 LINE SPLITTER/MULTIPLIER - 120 VOLT 60 HZ AND EUROPEAN VERSION

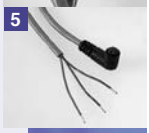
To quickly monitor the AC current in-line on any convenience outlet, simply plug the splitter in between the outlet and the equipment that is being monitored. For monitoring very small loads, there is a 10x multiplier slot for increased sensitivity. No wiring, safe to use.	N/A	N/A	A60FL and A70FL	A-47L	38-0001
			A65FL and A75FL	A-47CL	38-0002

Accessories

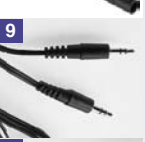
FEATURES/DESCRIPTION	RANGE	LENGTH/SIZE	COMPATIBILITY	MODEL	CAT. NO.
SENSORS: SmartReader – Pressure					
1 SMARTREADER 4 PRESSURE MODULES					
Plug-in pressure modules for any SmartReader 4 data logger (not compatible with SmartReader Plus 4). Available in Absolute and Gauge. Comes with a quick release pressure hose connector (not shown).	0-5 PSI Gauge 0-30 PSI Gauge 0-100 PSI Gauge 0-150 PSI Gauge 0-30 PSI Absolute 0-100 PSI Absolute	N/A	SR4	PM-005-G PM-030-G PM-100-G PM-150-G PM-030-A PM-100-A	01-0045 01-0047 01-0049 01-0086 01-0046 01-0048
2 1/4" PRESSURE HOSE					
Connects to most SmartReader or SmartReader Plus pressure sensors/modules.	0 to 75 PSI -15 to 60°C (4 to140°F)	OD: 6.35 mm (0.25") ID: 4.24 mm (0.167")	SR4, SRP4 up to 100 PSI	PH-025-075	30-0004
2 1/4" PRESSURE HOSE - HIGH PRESSURE					
Connects to most SmartReader or SmartReader Plus pressure sensors/modules.	0 to 150 PSI -15 to 60°C (-4 to 140°F)	OD: 6.35 mm (0.25") ID: 3.0 mm (0.12")	SRP4 150 PSI PM-150G	PH-025-150	30-0006
SENSOR WIRING					
3 2 CONDUCTOR 22 GAUGE SHIELDED WIRE					
For increasing the length of temperature probes. User must solder wire together; use ACR QUICK CONNECT connectors or have ACR professionally extend your sensor's reach.	22 Gauge -20 to 80°C (-4 to 176°F)	Specify length in feet	Any temperature probe. Other products may be extended. Call for compatibility.	2-22-WIRE	31-0007
4 4 CONDUCTOR 24 GAUGE SHIELDED WIRE					
For increasing the length of temperature and relative humidity probes. User must solder wire together; use ACR QUICK CONNECT connectors or have ACR professionally extend your sensor's reach.	24 Gauge -20 to 80°C (-4 to 176°F) Oil resistant	Specify length in feet	Any ACR RH probe. Other products may be extended. Call for compatibility.	4-24-WIRE	31-0006
5 FEMALE REPLACEMENT IP67 OWL EXTERNAL CABLE					
For use when connecting external transducers on the OWL 400 and 500 data loggers.	26 Gauge -20 to 80°C (-4 to 176°F). Oil resistant	2 m (6')	OWL 200, OWL 400, OWL 500	OWL-EXT	31-0003
INSTALLATION OF EXTENSION WIRE TO PROBE					
For customers who require ACR to extend the length of external sensors or probes. Each connection is soldered, sealed and then heat-shrunk for a secure water resistant connection. Contact ACR for maximum length extensions for specific products (order cable separately).	N/A	N/A	Any temperature or RH probe. Other products may be extended. Call for compatibility.	EXT-WIRE	88-9997







Accessories

FEATURES/DESCRIPTION	RANGE	LENGTH/SIZE	COMPATIBILITY	MODEL	CAT. NO.
SENSOR CONNECTORS					
1 11 PIN TERMINAL BLOCK					
Leave terminal blocks connected to your sensors. No need to rewire your sensors in every time you use your data logger at a different location. Convenient and time-saving.	N/A	N/A	SR, SRP	TB-11	29-0004
2 11 PIN TERMINAL BLOCK WIRE STRAIN RELIEF					
When multiple external sensors are connected to a SmartReader or SmartReader Plus data logger, this strain relief easily snaps on to the connector and locks all the wiring connections to the terminal block.	N/A	N/A	SR, SRP	STR-11	29-0013
3 QUICK CONNECT - WIRE EXTENSION SYSTEM					
An easy method of extending the length of any cable. Strip the wire ends to be connected, crimp them to the connector and heat with a lighter. This will provide a soldered, rugged and reliable connection for assured accuracy.	18 to 22 gauge wire	N/A	Any temperature or RH probe. Other products may be extended. Call for compatibility.	DS-1822	18-0019
4 TERMINAL BLOCK SCREWDRIVER					
Fits all ACR data logger terminal blocks, to tighten and loosen sensor leads.	N/A	N/A	Any ACR data logger with a terminal block.	SD-100	21-0059
COMMUNICATIONS: All Loggers - Logger to PC					
5 IC-101 COMPUTER TO LOGGER INTERFACE CABLE					
Connects an ACR data logger to a computer.	N/A	1.2 meters (4 feet)	SR, SRP, Nautilus	IC-101	01-0068
6 IC-102 USB COMPUTER TO LOGGER INTERFACE CABLE					
Connects an ACR data logger to a computer USB port	N/A	1.2 meters (4 feet)	SR, SRP, Nautilus	IC 102	01-0088
7 LIC-101 COMPUTER TO LOGGER INTERFACE CABLE					
Connects an ACR data logger to a computer.	N/A	1.8 meters (6 feet)	OWL and PowerWatch	LIC-101	01-0023
8 LIC-102 COMPUTER TO LOGGER INTERFACE CABLE					
Connects an ACR data logger to a computer USB port	N/A	1.8 meters (6 feet)	OWL and PowerWatch	LIC-102	01-0232
 **9 IC-101 STEREO CABLE REPLACEMENT**					
Replaces the 4' stereo cord on the IC-101 interface cable.	N/A	1.2 meters (4 feet)	IC-101, YA-200	SC-004	31-0009
10 IC-101 EXTENSION CABLE					
20' extension, male–female stereo cable.	N/A	6 meters (20 feet)	IC-101, YA-200	CB-020	31-0024
11 9 PIN RS-232 EXTENSION CABLE					
Extends the RS-232 port from the back of the computer to the front.	N/A	2 meters (6 feet)	IC-101, LIC-101, JR-1000 and JR-1001	RS-232-EXT	31-0017

Accessories

FEATURES/DESCRIPTION	RANGE	LENGTH/SIZE	COMPATIBILITY	MODEL	CAT. NO.
COMMUNICATIONS: All Loggers - Logger to PC					
13 USB SERIAL ADAPTER					
Allows communication with an ACR data logger through USB for computers that do not have a serial port. Compatible with ACR software on Windows 2000 SP4, XP SP1 and Vista 32 bit	N/A	N/A	Any ACR data logger with a terminal block	USB-100	01-0075
COMMUNICATIONS: SmartReader - Networking					
1 IC-101 OR IC-102 EXTENSION CABLE					
Male-Female 20' extension cable for extending the length of the logger interface cable	N/A	6 meters (20feet)	IC-101, IC-102	CB-020	31-0024
COMMUNICATIONS: SmartReader Plus - Networking					
2 YA-200 STEREO Y-ADAPTER					
Allows SmartReader Plus to be networked using 3-wire stereo cable.	N/A	N/A	SRP	YA-200	01-0098
3 YA-201 Y-ADAPTER FOR TELCO CABLE					
Allows SmartReader Plus data loggers to be networked using standard telephone cable.	N/A	N/A	SRP	YA-201	01-0166
Adapter only.	N/A	N/A	SRP	YAdapter	31-0018
4 NETWORK POWER SUPPLY (120 VOLT)					
Required when network length is greater than 50' or when more than three loggers are on the network. Also works as a power supply for fast sampling with any SmartReader Plus.	N/A	N/A	SRP	PS-201-NA	01-0165
4 NETWORK POWER SUPPLY (220 VOLT, SHUKO PLUG)					
Required when network length is greater than 50' or when more than three loggers are on the network. Also works as a power supply for fast sampling with any SmartReader Plus.	N/A	N/A	SRP	PS-201-EU	01-0164

Accessories

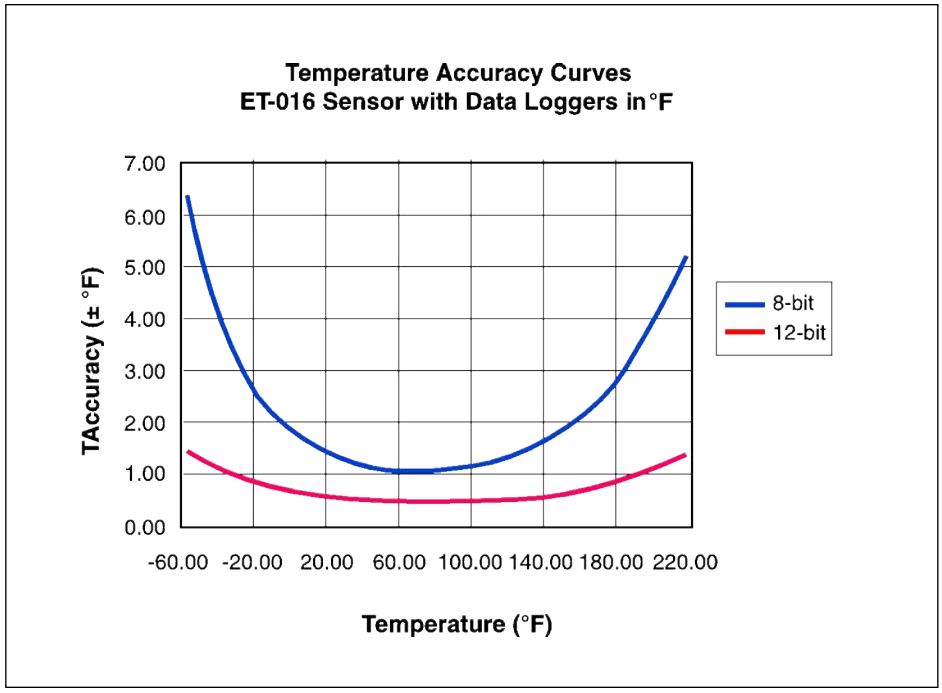
FEATURES/DESCRIPTION	RANGE	LENGTH/SIZE	COMPATIBILITY	MODEL	CAT. NO.
COMMUNICATIONS: Remote Communications					
1 COMPUTER STATION MODEM					
External modem for use with a PC factory programmed for communication with ACR data logger networks.	N/A	N/A	SR, SRP	USM-C	01-0300
1 REMOTE LOGGER SITE MODEM					
Factory programmed external modem for use on an ACR data logger network.	N/A	N/A	SR, SRP	USM-R	01-0301
2 MODEM ADAPTER					
Required to link a single SmartReader data logger to a modem. Also required on any SmartReader Plus remote network. Adapts between the IC-101 and the modem.	N/A	N/A	SR, SRP	MA-100	18-0023
MISCELLANEOUS: Environmental					
3 WEATHERPROOF BOX FOR ACR DATA LOGGERS					
Ideal for washdown bays or other environments where condensation or other contaminants may contact your data logger. Has a metal backing inside to allow the logger to suspend magnetically inside. One external connection sealing system is supplied permitting use of external probes with logger. NEMA 4x rated. Holds up to 3 data loggers.	N/A	127mm x 127mm x 76mm (5" x 5" x 3")	SR, SRP, JR-1000/1001, and OWL	WB-100	01-0057
4 ADDITIONAL WEATHERPROOF BOX EXTERNAL SEALING CONNECTORS					
Use with the Weatherproof Box to connect additional external sensors to a SmartReader or SmartReader Plus logger. Will seal up to a 1/4" diameter cable.	N/A	N/A	Weatherproof Box	WBC-100	21-0011
5 GORTEX® LOGGER SOCK					
Protects loggers from dust and debris while allowing air flow to the logger. Ideal for relative humidity loggers.	N/A	Fits all SmartReader and SmartReader Plus data loggers	SR, SRP	GLS	27-0027
6 JR-1000 PROTECTIVE CAP					
Protects the DB-9 connector on the JR-1000 data logger from dirt and debris.	N/A	N/A	JR	JR-CAP	21-0032
7 SMARTREADER PROTECTIVE CAP					
Protects the SmartReader stereo jack from dirt and debris.	N/A	N/A	SR, SRP	SR-CAP	21-0029
MISCELLANEOUS: PowerWatch – Adapters					
8 SOCKET ADAPTER STYLE #1					
Plugs into the Schuko (Europe) version of PowerWatch to convert the plug-in connection.	240 Volt North American	N/A	PowerWatch (Europe version)	PWA-001	21-0039
9 SOCKET ADAPTER STYLE #2					
Plugs into the Schuko (Europe) version of PowerWatch to convert the plug-in connection.	240 Volt Chile	N/A	PowerWatch (Europe version)	PWA-002	21-0043

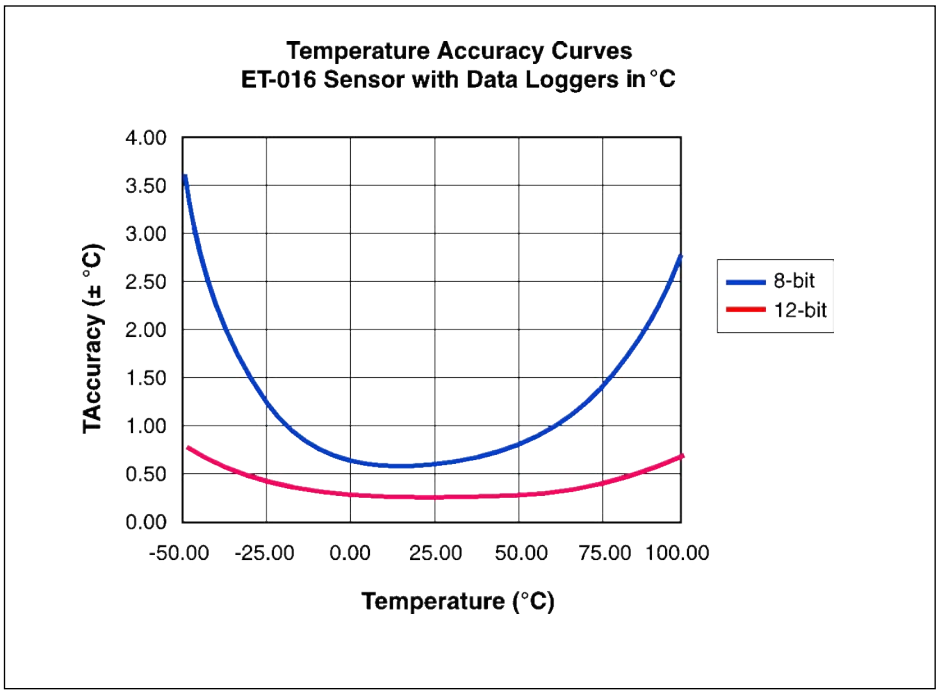
Accessories

FEATURES/DESCRIPTION	RANGE	LENGTH/SIZE	COMPATIBILITY	MODEL	CAT. NO.
MISCELLANEOUS: PowerWatch – Adapters cont.					
1 SOCKET ADAPTER STYLE #3					
Plugs into the Schuko (Europe) version of PowerWatch to convert the plug-in connection.	240 Volt Swiss	N/A	PowerWatch (Europe version)	PWA-003	21-0040
MISCELLANEOUS: Other					
2 FAST SAMPLING BATTERY PACK					
SmartReader Plus data loggers require the BP-101 Battery Pack to log at rates faster than once every 8 seconds. A male stereo jack and cable plugs directly into the communication port on the logger. It uses 4 AAA batteries (included) which are user replaceable.	N/A	82mm x 53mm x 30mm (3.2" x 2.1" x 1.2")	SRP	BP-101	01-0078
3 DATA LOGGER STORAGE CASE					
A convenient way to protect and organize your ACR data logger investment. Rugged and stylish, the case is made from Polystyrene for years of solid protection. Inside layout can be customized since the foam is die cut. Key locks provide added security. Can hold up to 21 data loggers plus accessories.	N/A	45cm x 35cm x 16cm (17.75" x 13.75" x 6.5")	All ACR data loggers and accessories, notebook computers.	SC-100	01-0106
4 MANUAL SETS: (MANUALS ONLY, NO SOFTWARE)					
OWL hardware and TrendReader software manuals in a binder.				Ref-OWL-Win	01-0082
SmartReader hardware and TrendReader software manuals in a binder.				Ref-SR-Win	01-0083
SmartReader Plus hardware and TrendReader software manuals in a binder.				Ref-SRP-Win	01-0084
PowerWatch manual, pages only.				–	37-0012
TrendReader software manual, pages only.				–	37-0005
SmartReader hardware manual, pages only.				–	37-0001
SmartReader Plus hardware manual, pages only.				–	37-0007
OWL hardware manual, pages only.				–	37-0004
SMARTBUTTON					
5 INTERFACE CABLE - USB					
For reading any ACR SmartButton.	N/A	N/A	ACRSB	ACRSB-USB-INT	01-0183
6 PERMANENT PLATE MOUNT					
For affixing ACR SmartButton to permanent installation.	N/A	N/A	ACRSB	ACRSB-HPM	45-0000
7 SOFT PLASTIC MOUNT					
For identifying individual SmartButtons.	N/A	N/A	ACRSB	ACRSB-SPM	45-0001
8 ANGLED BLUE HARD PLASTIC MOUNTING PLATE					
With security eyelet.	N/A	N/A	ACRSB	ACRSB-AF	45-0002
9 ACR SMARTBUTTON ADHESIVE					
Pre-cut to size.	N/A	N/A	ACRSB	ACRSB-AT	45-0003

Temperature Accuracy Curves

The internal temperature sensor located in almost all ACR data loggers is the ET-016 thermistor. Thermistors are non-linear which means the accuracy of the sensor varies over the entire temperature range of the logger. The graph below outlines the accuracy curves for the ET-016 thermistor. ACR data loggers with this thermistor on-board include: SmartReader, SmartReader Plus, OWL (if using standard range), JR, and Nautilus. These curves also apply to the ET-016 external thermistor probes with lengths less than 30 meters (100 feet).





ACR Systems Inc.

Our Quality and Customer Service Commitment

ACR Systems' products are extremely accurate measurement tools for engineers, technicians, scientists, managers, and just about anyone who needs to log data that is crucial to solving problems and improving performance in their company and/or application.

As an ISO 9001 company, ACR Systems is committed to quality: quality products, quality service, and quality management and operations. Our customers have discovered that we provide them with a great deal more than quality products - we deliver a level of service that adds real value to the relationship.

We are committed to answering all enquiries, processing all orders and assisting you with any technical support issues with the utmost speed, courtesy and professionalism. We guarantee a return response in the format that you request within 24 hours.

We have a number of tools available for you to reach us. You may call and speak one-to-one with a customer service or sales rep on the phone during regular business hours Monday to Friday 8:00am to 4:30pm PST. You may phone, fax or email us or visit our website at www.acrsystems.com. Our website includes extensive product information, useful and informative training materials and an equation generator and conversion program.

In addition to providing quality products and unsurpassed customer service, we offer:

- Exceptional warranties;
- Next-day shipping; and
- Calibration services.

ACR's commitment to quality and customer service is company-wide; responsibility for it begins at the highest levels. With the full commitment of our president, Albert C. Rock, the Customer Service department and everyone at ACR Systems pledges to address all of your data logging needs.

We thank you for your business and hope that you enjoy data logging ACR Systems'-style.

Eric Durand

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ISO Management Representative
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customerservice@acrsystems.com

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